Agriculture
WESTERN AUSTRALIA

LAND CLEARING PROPOSALS FOR RURAL ZONED LAND IN WESTERN AUSTRALIA

In accordance with a Memorandum of Understanding between:

Agriculture Western Australia
The Commissioner of Soil and Land Conservation
The Department of Conservation and Land Management
The Department of Environmental Protection
The Environmental Protection Authority
The Water and Rivers Commission

May 2000

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1 Introduction

Under the Soil and Land Conservation Act and Regulations, owners or occupiers of land are required to notify the Commissioner of Soil and Land Conservation of their intention to clear more than one hectare where there is a change in land use, at least 90 days prior to the expected commencement of that clearing.

The assessment process and supporting information required by the Commissioner depends on the zoning of the land.

This booklet deals principally with clearing proposals on rural zoned land.

1. If the land proposed to clear is zoned **"rural"**, it is assessed under a single evaluation process according to the 1997 Memorandum of Understanding[1] and subsequent policy statements.

2. If the land proposed to clear is zoned **other than "rural"**, it is assessed by the Commissioner under the 1994 procedures for the assessment of clearing proposals. Other relevant agencies may be notified of the proposal.

There is no requirement to notify the Commissioner of proposed clearing within controlled land specified in the Regulations (Wellington Dam, Mundaring Weir and Denmark River Catchment Areas, and Kent and Warren River Water Reserves). In those areas, an Application for a Licence to Clear land is required by the Water and Rivers Commission. However, the Water and Rivers Commission may seek advice from the Commissioner of Soil and Land Conservation.

It is recommended that prior to submitting a Notice of Intention to Clear Land for land zoned rural, or for land zoned other than rural, you contact the local Land Conservation Officer or the Office of the Commissioner (see Appendix (ix) for contact details).

[1] The Memorandum of Understanding is an agreement between the Commissioner of Soil and Land Conservation, Agriculture Western Australia, the Environmental Protection Authority, the Department of Environmental Protection, the Department of Conservation and Land Management and the Water and Rivers Commission and is the basis for the single assessment process for clearing of land zoned Rural.

2 The Memorandum of Understanding

The retention of native vegetation in the agricultural region of Western Australia is vital in stopping and reversing land degradation and loss of biodiversity. Land degradation and loss of biodiversity attributable to land clearing and the land uses which follow clearing are not acceptable.

In response to evolving public concern, in April 1995 State Cabinet endorsed a proposal to:

- provide better support for remnant vegetation protection and management;
- include nature conservation values in the assessment of clearing proposals; and
- remove the presumed right to clear native vegetation in landscapes containing less than 20% of the original vegetation (since overtaken by 5 March 1999 statement).

In 1997, an agreement or Memorandum of Understanding (MoU) was established between the agencies involved in assessing land clearing. The intent of this MoU is to give landholders a clear understanding of the criteria against which clearing proposals are assessed and confidence in the fact that clearing applications will be treated quickly and consistently by Government as a whole. The agencies involved are the Commissioner of Soil and Land Conservation and Agriculture Western Australia (AGWEST); the Environmental Protection Authority (EPA) and the Department of Environmental Protection (DEP); the Water and Rivers Commission (WRC); and the Department of Conservation and Land Management (CALM).

This Memorandum of Understanding applies to proposals to clear more than one hectare of native vegetation on rural zoned land in southern Western Australia.

Existing arrangements with other agencies and authorities under the MoU aimed at ensuring that broader nature conservation values are not threatened by the proposed clearing will be maintained. Where the Commissioner does not object on land degradation grounds, he will consider advice from the Department of Environmental Protection, the Department of Conservation and Land Management, and the Water and Rivers Commission, and may refer proposals to other authorities for appropriate action under other legislation.

The new arrangements ensure that further clearing does not add to the severity of land degradation that already affects significant areas of rural Western Australia. They are designed to reduce further clearing to an absolute minimum.

This section of the booklet explains how Notices of Intention to Clear will be assessed under the MoU. Landholders are invited to seek clarification on any aspect by telephoning the Office of the Commissioner of Soil and Land Conservation on (08) 9368 3282 or the local office of Agriculture Western Australia.

3 The 5 March 1999 Amendment

The Minister for Primary Industry, Monty House has announced new administrative procedures to govern clearing controls administered under the Soil and Land Conservation Act. The new procedures take effect from Friday, 5 March 1999.

These procedures augment the Memorandum of Understanding for the protection of remnant vegetation in Western Australia (MoU) published in April 1997.

Under the new procedures landholders wishing to clear vegetation will have to prove that any proposed land clearing will not cause land degradation. The collection of detailed information to assist the assessment of clearing proposals will no longer be undertaken by AGWEST staff. The Commissioner will request landholders to document and present their case of assessment.

4 When a Notice of Intention to Clear (NOIC) Land is required

Any landholder or occupier who intends to clear more than one hectare of vegetation must notify the Office of the Commissioner of Soil and Land Conservation at least 90 days prior to the proposed commencement of clearing. When the Commissioner does not object, the landholder must commence clearing within two years of the date of submitting the NOIC. The NOIC and the decision of the Commissioner are not transferable between successive landowners.

Clearing of bushland to a 'parkland cleared' condition, incremental clearing, (i.e. clearing in several instalments of one hectare), passive clearing (using agents such as fire, livestock or chemicals) and clearing of regrowth which is more than two years old are all forms of land clearing. All are notifiable.

Notification is not required where CALM fells or approves the felling of forest that will regrow as natural forest. Fence lines and firebreaks may be cleared without notification. Isolated paddock trees may also be cleared without notification except in controlled catchments in which case the WRC must be notified.

Country area water supply catchments

There are six water resource catchments (or controlled catchments) in the southwest. In these areas landholders must apply to the **Water and Rivers Commission** for a licence to clear native vegetation. However, the Water and Rivers Commission may seek advice from the Commissioner.

The controlled catchments are Mundaring Weir, Wellington Dam, Harris River Dam, Warren River Water Reserve, Kent River Water Reserves and the Denmark River Catchment Area.

Peel Harvey Environmental Protection area

The Peel Harvey Catchment is covered by formal environment conditions set by the Minister for Environment. These conditions include a moratorium on rural land clearing. NOICs may be received for land clearing proposals in this area and where the Commissioner is of the opinion that land degradation will not occur, he will refer these clearing proposals to the Department Environmental protection for a decision. Proponents may be required by the EPA to provide Level Four supporting information.

5 The MoU Assessment Process

The Commissioner of Soil and Land Conservation is responsible for ensuring that land degradation will not result from clearing. The Commissioner will assess clearing proposals in conjunction with other agencies and authorities that have statutory powers over land clearing. This ensures that all natural resource issues are considered when clearing proposals are assessed.

Notices of Intention to Clear (NOIC) will be assessed using a four level evaluation process. However, the landholder now only needs to make one application to obtain a ***whole of government*** response. As the NOIC passes through each of the four stages the landholder will be advised of any costs or statutory implications likely to arise as the process continues.

The first three Levels are the prime responsibility of the Commissioner of Soil and Land Conservation and they must be completed within 90 days of a correctly prepared Notice of Intention to Clear being accepted by the Office of the Commissioner. During this 90 day period, advice will be drawn from DEP, CALM, WRC and AGWEST. Where the application of Government policy requires powers beyond those of the Commissioner, the Commissioner will refer the proposal to the EPA for the Level Four assessment.

You can withdraw from the evaluation process up to Level Three without any conditions such as a memorial being registered on the property title. Alternatively, you may appeal against the decision at any of the four Levels, using the provisions of the Soil and Land Conservation Act (where a Soil Conservation Notice is applied) up to Level Three or the Environmental Protection Act (level of assessment or conditions) for Level Four.

Level One - Preliminary proposal

Landholders are invited to submit a 'preliminary proposal' with their Notice of Intention to Clear (NOIC) to the Office of the Commissioner of Soil and Land Conservation.

The Commissioner will acknowledge the receipt of a NOIC and its accompanying preliminary proposal. This letter will point out that the 90 day assessment period only starts when the **preliminary proposal** has been checked for completeness and registered by the Office of the Commissioner in South Perth.

Once accepted, a **preliminary proposal** will be assessed by the Commissioner. Within 20 days the Commissioner will advise that he either:

- objects to the clearing proceeding (land degradation likely to occur); or
- requires further information in the form of the **full proposal**

If the Commissioner objects and you choose to withdraw the NOIC you must provide a written undertaking not to clear the land, otherwise a Soil Conservation Notice may be applied.

If the Commissioner objects and you choose not to withdraw the NOIC, the Commissioner will issue a Soil Conservation Notice.

You may formally appeal to the Minister for Primary Industry against the Soil Conservation Notice. Where broad environmental concerns are identified, the Minister may refer the proposal to the EPA for assessment.

Level Two - Full proposal

Where the Commissioner does not object on land degradation grounds, a landholder may be invited to submit a full proposal, prepared at his own expense. The Commissioner may outline the types of information required to enable a proposal to be further assessed under his guidelines. He will also indicate what the requirements of other agencies or authorities with statutory power in this area are likely to be.

To be successful the **full proposal** will need to demonstrate that the clearing will not cause any land degradation, or threaten broader natural resource conservation values (as assessed by other agencies and authorities).

Once a **full proposal** has been received, the proposal will be examined by officers from the Office of the Commissioner, and from the Department of Environmental Protection, the Department of Conservation and Land Management, and the Water and Rivers Commission.

If the Commissioner objects and you choose to withdraw the NOIC you must provide a written undertaking not to clear the land, otherwise a Soil Conservation Notice may be applied.

If the Commissioner objects and you choose not to withdraw the NOIC, the Commissioner will issue a Soil Conservation Notice.

You may formally appeal to the Minister for Primary Industry against the Soil Conservation Notice. Where broad environmental concerns are identified, the Minister may refer the proposal to the EPA for assessment.

Level Three - Working Group review

This level of review comprises a formal meeting of senior agency representatives. The Working Group is able to advise the Commissioner:

1. that clearing should be objected to, within the powers of the Commissioner; or
2. that all or some clearing may proceed subject to any conditions placed upon the application; or
3. that the clearing proposals should be referred to other agencies for attention under their legislation; or
4. to refer the clearing proposal to the EPA for Level Four assessment.

Where some clearing is permitted, and some land is to be retained in native vegetation, you will be asked to enter into an Agreement to Reserve (ATR).

An ATR is a formal document stating that you agree with the Commissioner that an area is not to be cleared.

The ATR is registered as a memorial on Certificate of Title and defines exactly which areas of vegetation must be protected.

Adjustment measures may be available.

Level Four - Consideration by the Environmental Protection Authority

The Commissioner of Soil and Land Conservation refers proposals to the EPA for consideration. The letter of referral contains copies of information collected to date.

It is your responsibility to provide any additional information required by the EPA.

Where some clearing is permitted but some native vegetation is also to be retained, an Agreement to Reserve may be required.

6 Evaluation criteria

Each of the agencies which is a signatory to the Memorandum of Understanding on Land Clearing has criteria for which it is responsible. Collectively, these may be considered under the headings of:

Degradation processes
Native vegetation should be retained if its clearing and/or subsequent land use are likely to contribute to:

salinity

eutrophication (pollution from fertilisers and manures);

wind erosion

water erosion

waterlogging or flooding

soil acidification

Conservation and heritage values
Native vegetation should be retained if clearing would result in:

loss of corridors or 'stepping stones' between conservation reserves; or

loss of high value landscape areas, natural landforms, Aboriginal sites or heritage areas.

Representation
Native vegetation should be retained if:

it contains, or is likely to contain threatened flora;

it contains, or is likely to contain threatened plant communities;

it possesses very high species richness;

it contains significant wetlands;

there are no viable occurrences of that plant community in national parks or nature reserves, crown land, or under a Remnant Vegetation Protection Scheme covenant;

the vegetation communities are not well conserved compared with the original cover as represented in the Interim Biographical Representation in Australia (IBRA);

it contains or is likely to contain rare fauna; and

it is a significant habitat for wildlife.

Viability
Areas likely to be ecologically viable in fifty years time should be retained, noting that:

large areas have higher conservation values and groups of small remnants allow fauna to move between remnants;

very narrow areas are likely to be less viable and have reduced value as corridors;

remnants with little or no undisturbed area are unlikely to be viable;

the remnant should be free of major diseases such as dieback;

the remnant should be free of invasive plants capable of disrupting ecological processes; and

adjacent land uses should not threaten the remnant.

7 What to provide

The Commissioner of Soil and Land Conservation requires:

1. A fully completed copy of Form 1 of Schedule 2 'NOTICE OF INTENTION TO CLEAR LAND'. (See Appendices)

2 A copy of the advertisement placed in the Public Notices Section of the Saturday edition of the West Australia newspaper and the relevant local newspaper.

> Notice of Intention to Clear
>
> Take notice that I/We (**Name**) of (**Street address**), being the owner/s or occupier/s of (**District**) location (**Number**), Lot (**Number**) situated approximately (**...kilometres north/south/east/west**) of (**Town**) on (**Road name**) intend to submit to the Commissioner of Soil and Land Conservation, a Notice of Intention to Clear approximately (...) hectares of (**type**) vegetation. The clearing is for the purpose of (**intended land use**). Members of the public are invited to write registering their views on the proposal or to provide any relevant information they may have, to the Deputy Commissioner of Soil and Land Conservation, Agriculture Western Australia, 3 Baron-Hay Court, South Perth 6151

3. A current aerial photograph covering contiguous Locations in your ownership at a scale of 1:10,000. On the photograph should be marked any changes to the vegetation since the photograph was taken, and the areas of vegetation proposed to be cleared.

   Photos can be obtained from:

   The Central Map Agency
   Department of Land Administration
   Post Office Box 2222
   MIDLAND WA 6056

   Alternatively, a map may be provided showing the areas of native vegetation proposed to be cleared and to remain. This map should also accurately show the soil types, rocky areas, non-native vegetation, wetlands, watercourses, proposed windbreaks, contour lines, location numbers, public roads and any other relevant features.

4. Preliminary proposal which should contain a cadastrally correct map of the proposal at 1:10,000 scale. This proposal should accurately describe:
   - all ownership boundaries;
   - topographic features;
   - soil types and landscape systems;
   - all remnant and planted vegetation and reserved land;
   - any water courses, wetlands or saline areas that relate to the area proposed for clearing, marked with recognised names;
   - the extent of the proposed clearing;
   - areas of existing land degradation.
   - A brief written statement outlining the suitability of the land for the proposed use, including steps proposed to manage and prevent land degradation.

8 Adjustment measures

Opportunities will be actively sought to ease economic pressures on landholders should clearing proposals not be approved.

Existing programmes that assist the adjustment process include the Remnant Vegetation Protection Scheme, acquisition by CALM, private purchase and the Natural Resource Adjustment Scheme.

Natural Resources Adjustment Scheme

In order to protect parts of rural Western Australia from land degradation, the State Government must restrict the clearing of rural land. Recognising that this has disadvantaged some landholders, the State Government established the Natural Resources Adjustment Scheme. Under the Scheme, the assistance options are:

- The coordination and reimbursement of costs to subdivide the remnant vegetation onto its own new title,
- A payment to the landholder to retain the remnant vegetation.
- Assist with the sale of the bush to a third party.

This is a voluntary scheme. The final outcome will be determined by means of negotiation.

To be eligible, the landholder must have

- Submitted a NOIC prior to and including 31 Dec 1999, and have had a 100% objection to clearing since 17 May 1995.
- The land must be zoned Rural and the property have had greater than 20% remnant vegetation at the time of submitting the NOIC.
- It must be practical to subdivide the land in an manner supported by the WA Planning Commission and the local authority.

For further information call the Freecall number 1800 198 231

Remnant Vegetation Protection Scheme

Remnant vegetation on private land is an important natural resource contributing to flora and fauna, wetlands and soil conservation. The Government has allocated $900,000 per annum and may grant $1,200 per kilometre towards the cost of fencing remnant vegetation on private land. Landholders are required to enter into a 30 year Conservation Covenant over the remnant with the Commissioner of Soil and Land Conversation if they accept an RVPS grant. Applications are assessed on the conservation value of the vegetation.

Enquiries can be directed to:

The Deputy Commissioner of Soil and Land Conservation
Agriculture Western Australia
Locked Bag No. 4
BENTLEY DELIVERY CENTRE WA 6983

Telephone: (08) 9368 3282

or any Agriculture Western Australia office.

Acquisition by CALM

CALM has limited funds for this purpose. These are specifically targeted at high priority additions to the public conservation estate and assessed on a statewide basis. This does not necessarily include areas that have been proposed for clearing.

For further information, contact:

Land Acquisition Officer
CALM
Locked Bag 104
BENTLEY DELIVERY CENTRE WA 6983

or

Telephone: (08) 9334 0594

Private purchase

A range of individuals and organisations may be interested in purchasing remnant vegetation to protect its conservation value. Examples of where this has occurred include the Corrigin Land Conservation District Committee, the Lake Mealup Preservation Group and the Good Sanctuary Pty Ltd. Bush generally needs to be in good condition to attract a purchaser.

Other state or national bodies with purchase programs are emerging. The Australian Bush Heritage Fund is one group interested in purchasing land of high conservation value and they have already made one purchase of wandoo woodland near Kojonup.

For further information on the Australian Bush Heritage Fund, write to GPO Box 101, Hobart, Tasmania 7001, or Freecall 1800 677 101.

SECTION 9

APPENDICES

Appendix (i)

MEDIA STATEMENT

VERNMENT OF WESTERN AUSTRALIA

March 5, 1999

MINISTER FOR PRIMARY INDUSTRY

Primary Industry Minister Monty House announced today that he had put in place stringent administrative arrangements to control future agricultural land clearing in Western Australia.

Mr House said that the onus would now be clearly on the landowner to prove that any proposed land clearing would not cause land degradation.

"Proper controls are necessary to protect the property and viability of existing farmers," Mr House said.

The proponent of any clearing would now be responsible for providing detailed information before their application could be considered. Under previous arrangements detailed assessments and collection of information on proposals had been conducted by Agriculture WA.

For a proposal to proceed, landholders would need to clearly demonstrate that there would be no adverse impact on neighbouring and downstream properties, particularly from salinity, and that environmental impacts would be minimal.

Land holders would still be required to publicly advertise their intention to seek approval to clear land.

"It must be recognized that action to tighten clearing controls has been taken to protect the best interests of agriculture and the community of WA, and as such I know the industry as a whole will respond positively and responsibly," Mr House said.

"These new arrangements build on existing processes and are necessary because we need to maintain the highest possible level of protection for existing agricultural land.

"In addition I have extended the Natural Resource Adjustment Scheme until December 1999. This will assist additional farmers affected by clearing controls in return for long

term protection of their land.

"In the interim, I will be establishing a working group which will report to me by June 30 on ways to progress an equitable solution for landholders who are unable to clear further land.

Mr House acknowledged that land clearing was of community concern but confirmed that in the 10 years from 1988 - 1998, land clearing had been reduced from approximately 35,000 ha each year to 873 ha.

Mr House initiated a Memorandum of Understanding in April 1997 to ensure a more efficient evaluation process, which takes into account land degradation, nature conservation and broader natural resource issues.

A range of advice is sought and received throughout the process in evaluating each application, which may lead to variations in the final outcome.

The MOU gives effect to a Cabinet decision establishing a single evaluation process to ensure that land clearing proposals are assessed on land degradation and bio-diversity grounds.

The MOU is a four stage process involving Conservation and Land Management, the Department of Environmental Protection, Waters and Rivers Commission and Agriculture Western Australia.

The fourth stage involves issues other than land degradation and is directed by the Environmental Protection Act and the Country Areas Water Supply Act.

If a farmer wishes to clear land, he must advise the Commissioner of Soil Conservation who makes an assessment on land degradation grounds. If the proposal is objected to a Soil Conservation Notice is issued and a farmer has a democratic right to appeal against a Soil Conservation Notice.

An independent appeals advisory committee is then appointed by the Minister under the Act to consider the appeal on land degradation grounds.

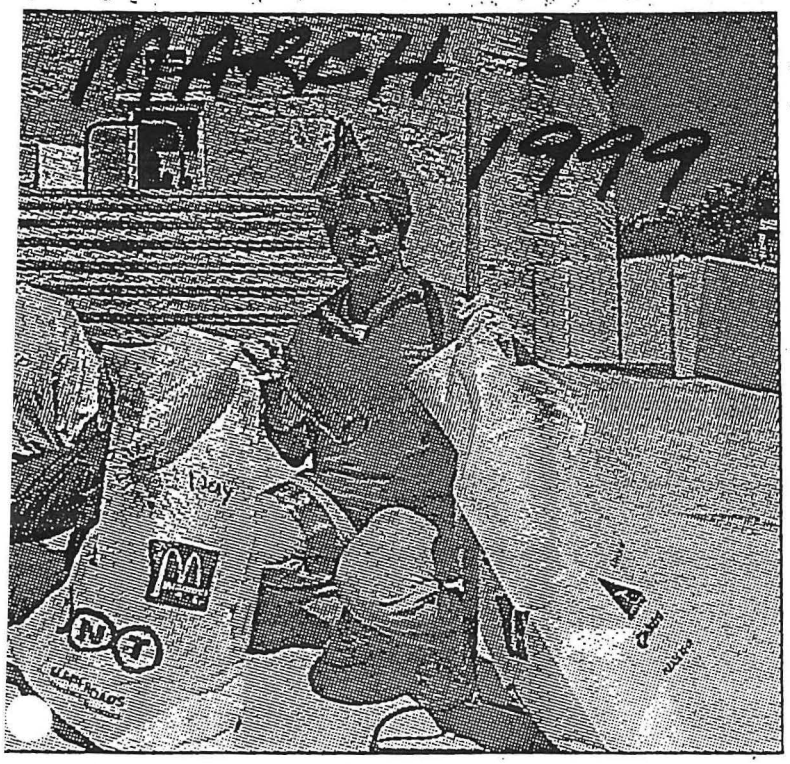
The three member committee comprises representatives from Agriculture Western Australia and Department of Environmental Protection and a person engaged in agriculture, horticulture or pastoral industries.

The committee assesses the case and provides advice to the Minister.

"It is important that people are made fully aware that this State's farmers have shown a significant personal and financial commitment to the landcare movement and land clearing has been drastically reduced during my term as Minister," Mr House said.

Media Contact: Julie Cole (08) 9481 2044 (08) 9476 0369 pager.

ed. which timber products they are pre- servation value," Dr Gallop said.



ions Club members John Kirkwood and Margaret around the historic Roundhouse. PICTURE: BARRY BAKER

p hits a decade

as Perth
he song of
y the buzz
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Up Austra-
organisers
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said Clean Up started with the simple idea that every individual could make a difference. In the past decade, more than 250,000 people had collected 15,000 tonnes of rubbish from WA's streets, beaches, bush and waterways.

The West Australian today lists sites requiring volunteers. They need to wear sunscreen, a hat and sturdy shoes and find the site supervisor, who will get them started.

House puts clear onus on farmers

PRIMARY Industry Minister Monty House has tightened WA's land-clearing regulations to put the onus on farmers to prove that clearing natural bush will not cause land degradation.

Under previous regulation, Agriculture WA had to prove clearing would degrade the neighbouring land before it could object to the proposal.

Mr House said yesterday no clearing application could be considered until the proponent could show there would be no adverse effect on neighbouring and downstream properties.

"This action to tighten clearing controls has been taken to protect the best interests of agriculture and the community of WA," Mr House said.

Pastoralists and Graziers Association property rights spokesman John Hyde said Mr House's announcement was another blow to farmers who wanted to develop their property.

"This is a burden on farmers who have land they want to clear because the cost of not being able to clear is not spread across all taxpayers," he said.

WA Conservation Council coordinator Rachel Siewert said she was pleased that Mr House had shown some leadership on clearing.

The four level evaluation process for land clearing proposals

THE FOUR LEVEL EVALUATION PROCESS FOR LAND CLEARING PROPOSALS				
LEVEL	**ACTION**	**BY**	**ON GROUNDS OF**	**OUTCOME**
1	Preliminary proposal examined	Commissioner and DEP	Land degradation processes, plus biodiversity.	Commissioner objects or invites full proposal
2	Full proposal evaluated	Commissioner and DEP	Land degradation processes, plus biodiversity.	Commissioner objects or refers to IAWG
3	Proposal considered	Inter Agency Working Group (IAWG) which comprises the Commissioner, CALM, DEP, WRC	Flora and fauna, water quality, on and off site land degradation	IAWG considers and recommends that the Commissioner 1. Object 2. Partially approve 3. Fully approve 4. Refer to CALM, or WRc 5. Refer to EPA
90 days ends here				
4	Follow up under CALM or WRC Acts (uncommon) Follow up by EPA	CALM or WRC EPA	Flora and fauna, water quality, on and off site land degradation Any of above where implications are significant	Usually negotiate approval with conditions No assessment, Informal assessment with advice. Formal assessment (CER)

CRITERIA

FOR

EVALUATING LAND DEGRADATION RISKS

Land capability classes

Capability class	General description
I	Very high capability for the proposed activity or use. Very few physical limitations present which are easily overcome. Risk of land degradation is negligible.
II	High capability. Some physical limitations affecting either productive land use or risk of land degradation. Limitations overcome by careful planning.
III	Fair capability. Moderate physical limitations significantly affecting productive land use or risk of land degradation. Careful planning and conservation measures required.
IV	Low capability. High degree of physical limitations not easily overcome by standard development techniques and/or resulting in a high risk of land degradation. Extensive conservation requirements.
V	Very low capability. Severity of physical limitations is such that its use is usually prohibitive in terms of either development costs or the associated risk of land degradation.

Salinity
(all regions)

Rainfall greater than 1100 mm – no salinity risk if drainage lines are present.

Rainfall less than 1100 mm – there may be a risk due to high levels of salt storage in the regolith. This risk can be minimised by not clearing:

1. Rocky ridges and hill tops with freely draining soil profiles.
2. An area upslope of dykes and other geological features (where evident), which may act as hydrological barriers. Sufficient vegetation should be left (or established):
   (a) to cope with the extra recharge from upslope cleared areas assuming that extra recharge will not be < 7% of mean annual rainfall; and
   (b) the vegetation will transpire saline groundwater at 0.4 of Class pan A (see footnote). A minimum strip of 50 m width should be left.
3. An area adjacent to outcrops of country rock. Sufficient fringing vegetation should be left around the outcrop to transpire the runoff from the rock. The area can be calculated assuming runoff from the rock is 60% of annual rainfall and that the vegetation, in a water accumulating zone, will transpire at a rate equal to 0.8 of Class A pan evaporation. The calculation must also account for the rain falling directly on the vegetation (see footnote). A minimum strip of 50 m width should be left.
4. An area adjacent to existing defined streamlines. Where the streams are perennial a strip at least 75 m should be left on each side of the stream. For ephemeral streams the buffer width should be sufficient to cope with the extra recharge expected to result from upslope clearing (see 2 and 3).
5. An area adjacent to swamps, lakes and waterlogged depressions.

   The vegetative buffer strip must be of sufficient width to cope with the expected additional recharge resulting from upslope clearing (see 2 and 3 for assumptions).
6. Areas where it is known that the saline water table is currently less than 5 m from the natural soil surface in spring.
7. In areas where the potential spring line is the intersection of sandplain and heavier textured soils (i.e.: where a sandplain seep is likely) more hydrologic advantage would be gained by permitting clearing on the condition that an appropriately placed strip of exotic trees are planted sufficient to cope with the expected recharge from the upslope sandplain.
8. Naturally saline soils.
9. The total area of protected native vegetation left within a **sub-catchment*** should be relative to the mean annual rainfall. Suggested guideline figures are:

700–1100	mm rainfall	30%
500– 700	mm rainfall	25%
less than 500	mm rainfall	20%

note. These percentages are subject to review

This figure will comprise of the areas left for purposes defined in 3–5 plus areas left for other conservation purposes. If these do not satisfy the requirement then the additional vegetation should be left on the upper 30% of the sub catchment.

Footnote: Area upslope of hydrologic barriers

Let area to be left = Y
(0.4 Epan) Y = area upslope x mean annual rainfall x 0.07

Example: If the mean annual rainfall is 400 mm (0.4 m), Epan 2000 mm (2.0 m) and the area upslope of barrier is 50 ha (500,000 m^2)
Then (0.4 x 2.0) Y = 500,000 x 0.4 x 0.07
0.8 Y = 14,000
Y = 17,500 m^2 or 1.75 ha

Area below rocks

Let area to be left = Y
(0.8 Epan) y = (rock area x 0.6 mean annual rainfall) + (Y x mean annual rainfall)

Example: If the mean annual rainfall is 400 mm (0.4 M), Epan 2000 mm (2.0 m) and the area of rocks is 20 ha (200,000 m^2)
Then (0.8 x 2.0) Y = (200,000 x 0.6 x 0.4) + (Y x 0.4)
1.2 Y = 48,000
Y = 40,000 m^2 or 4.0 ha

* Sub catchment: The catchment of the confluence of 2 of the first well defined drainage lines (first order streams) in the landscape. As a guide the area of the sub-catchment could be expected to be related to rainfall and the following are suggestions:

700–1100	mm	500 ha
500–700	mm	1000 ha
less than 500	mm	2000 ha

Eutrophication
(South West and South Coast regions)

1 Land with the following characteristics should not be cleared:

- land subject to regular flooding (flood interval < 1 year)
- land subject to prolonged inundation (> 2 weeks)

2 Buffer zones should be maintained around water bodies:

Water bodies	Site characteristics
Inlets	– no clearing within 75 m of high water mark
Rivers	– no clearing within 50 m of stream bank
Minor creeks, waterways and wetlands	– no clearing within 25 m of the stream bank.

3 Soils with a low to very low Phosphorous retention ability should not be cleared.

Soil description	Phosphate retention ability*	Land capability class
Deep (> 1 m) grey leached siliceous sands where iron–organic pans or coloured subsoils, if present, occur at depths greater than 1 m.	Very low	V
Grey leached sands or sandy loams with an iron–organic hard–pan within 1 m of the soil surface. Duplex soils with moderately deep (50–100 cm) sandy leached topsoils, or leached sands of similar depth overlying unrelated clays or a hardpan. Shallow (<50 cm) gravelly sands over rock.	Low	V

* Ranges of P retention index are: very low 0–2; low 2–10; moderate 10–20; moderately high 20–100 and high > 100.

Wind erosion (Technical detail)						
Agricultural region	Soil surface texture	Land capability class				
		I	II	III	IV	V
South West	Surface texture	CL	L	SL	MS/CS	FS
	Structure (peds)	> 5 mm	2–5 mm	1–2 mm	< 1 mm	single grain
	Drainage	> 1 week	4–7 days	3–4 days	1–2 days	< 5 hrs
	Water holding capacity	> 20%	10–20%	8–10%	5–7%	< 5%
	Clay depth	.25–.5 m	.5–1.0 m	1.0–1.5 m	1.5–2.0 m	> 2.0 m
	Fetch	> 800 m	400–800 m	150–400 m	100–150 m	< 100 m
North East	Surface texture	C	L	SL	S	CS
	Structure	hardset	hardset/firm	firm	single grain	single grain
	Water repellency	No	No	No	Yes	Yes
	Nutrient retention	> 20%	10–20%	7%	7%	5%
				West Midlands		
	Depth/colour change			0–0.5 m 10yr 7/8 (or darker)	0.5–1.0 m 10yr 7–8/6 (or whiter)	> 1.0 m 10yr 8/6
South Coast	Soil and site characteristics which determine the wind erosion hazard for cereal/livestock farming					
	Surface texture	CL	L	SL	MS/SC	
	Structure (peds)	> 5 mm	2–5 mm	1–2 mm	< 1 mm	single grain
	Drainage	> 1 week	4–7 days	3–4 days	1–2 days	< 5 hrs
	Water holding capacity	> 20%	10–20%	8–10%	5–7%	< 5%
	Clay depth	.25–.5 m	.5–1.0 m	1.0–1.5 m	1.5–2.0 m	> 2.0 m
	Fetch	> 800 m	400–800 m	150–400 m	100–150 m	< 100 m
Great Southern	Surface texture	CL	L	SL	Ms/CS	FS
	Structure (peds)	> 5 mm	2–5 mm	1–2 mm	< 1 mm	single grain
	Drainage	> 1 week	4–7 days	3–4 days	1–2 days	< 5 hrs
	Water holding capacity	> 20%	10–20%	8–10%	5–7%	< 5%
	Clay depth	.25–.5 m	.5–1.0 m	1.0–1.5 m	1.5–2.0 m	> 2.0 m
	Fetch	>.800 m	400–800 m	150–400 m	100–150 m	< 100 m
Central	Surface texture	CL	L	SL	LS	S & Sodic Loams
	Structure (peds)	> 5 mm	2–5 mm	1–2 mm	< 1 mm	single grain
	Clay depth	.25–.5 m	.5–1.0 m	1.0–1.5 m	1.5–2.0 m	> 2.0 m
	Fetch	> 800 m	400–800 m	400 m	300 m	300–400 m
	Bush strips	20–30 m wide N–S	20–20 cm wide N–S	40 m wide N–S	40 m wide N–S	40–60 m wide N–S

Note: Sandy soils with peds of < 1 mm, which have a low water holding capacity and therefore low agricultural production potential, should not be cleared as they do not have an ability to maintain adequate ground cover.

Wind erosion – assessment
(All regions)

The process to follow for the assessment of wind erosion hazard.

Determine the strength of the soil in terms of consistency (McDonald *et al.* Australia Soil and Land Survey – field Handbook p 115–116). Strength is determined by the force just sufficient to break or deform a 20 mm diameter piece of dry soil when a compressive shearing force is applied between thumb and forefinger.

Force	Description		Hazard "rating"
0	Loose	No force required. Separate particles as found in loose sands.	6
1	Very weak	Very small forces, almost nil.	5
2	Moderately weak	Small but significant force.	4
3	Moderately firm	Moderate to firm force.	2
> 3	Very firm to rigid	Disregard as wind erosion hazard, if particles > 2 mm.	1

2. Determine the particle or ped size: if the majority of sizes are less than 2 mm, it should be regarded as a wind erosion hazard.

Particle or ped size	Hazard "rating"
< 1 mm	6*
1–2 mm	5
2–5 mm	3

* > 90% goes through sieve (visual estimate).

3. Relief and aspect is also important. This can be combined to give ratings on the following landforms:

Landform	Hazard "rating"
Dune system	6
Exposed flat plain	5
Undulating country	4
Hilly terrain	2
Depressions	1

4. Add totals from 1–3 to determine the land capability class for the wind erosion hazard.

Added points	Land capability class	Comments
18	5 V	No clearing
16–17	4 IV	Clearing with wind protection left
< 16	3 I–III	Normal district practice

Clearing guidelines for defined degradation hazards

Water erosion						
Agricultural region	Soil surface texture	Land capability class				
		I	II	III	IV	V
		%	%	%	%	%
South West	Sand	0–2	3–4	5–8	9–15	> 15
	Sandy Loam and Loams	0–2	3–5	6–8	9–20	> 20
	Clay Loams & heavier	0–1	2	3–8	9–25	> 25
Northern	Sand	0–2	3–4	5–8	9–15	> 15
	Sandy Loams	0–2	3–5	6–8	9–15	> 15
	Clay Loams and heavier	0–1	2	3–8	9	> 9
South Coast	Sand	0–2	3–4	5–8	9	> 9
	Sandy Loam and Loams	0–2	3–5	6–8	9–15	> 15
	Clay Loams and heavier	0–1	2	3–8	9	> 12
Great Southern	Sand	0–2	3–4	5–8	9	> 9
	Sandy Loam and Loams	0–1	2	3–8	9–15	> 15
	Clay Loams and heavier	0–1	2	3–8	9	> 9
Central	Sand	0–2	3–4	5–8	9	> 9
	Sandy Loam and Loams	0–1	2	3–8	9	> 15
	Clay Loams and heavier	0–1	2	3–8	9	> 9

Waterlogging						
Agricultural Agricultural region	Soil surface texture	Land capability class				
		I	II	III	IV	V
South West	Drainage	well drained	moderately drained	imperfectly drained	poorly drained	v. poorly drained
	Landform element	undulating	undulating	plain	valley floor	swamp
	Soil type	S	SL	SCL duplex soils	C	C
	Soil depth	> 1.0 m	0.5–1.0 m	.2–.5 m	< 0.2 m	< 0.2 m
	Mottling	0–10%	10–20%	20–30%	30–70%	gleyed
	Inundation risk	Nil	low	medium	high	very high
Northern	Drainage	well drained	moderately drained	imperfectly drained	poorly drained	v. poorly drained
	Landform element	undulating	undulating	plain	valley floor	swamp
	Soil type	S	Sl	SCL duplex soils	C	C
	Soil depth	> 1.0 m	0.5–1.0 m	.2–.5 m	< 0.2 m	< 0.2 m
	Mottling	0–10%	10–20%	20–30%	30–70%	gleyed
	Inundation risk	Nil	low	medium	high	very high
South Coast	Drainage	well drained	moderately drained	imperfectly drained	poorly drained	v. poorly drained
	Landform element	undulating	undulating	plain	valley floor	swamp
	Soil type	S	SL	SCL duplex soils	C	C
	Soil depth	> 1.0 m	0.5–1.0 m	.2–.5 m	< 0.2 m	< 0.2 m
	Mottling	0–10%	10–20%	20–30%	30–70%	gleyed
	Inundation risk	Nil	Low	Medium	High	Very high
Note: Low lying depressions with poorly drained soils should not be cleared.						
Great Southern	Slope	> 5%	5–3	3–1%	1–0.1%	0%
	Depth to clay	> 1 m	> 1 m	0.5–1.0 m	.5–.15 m	< 0.15 m
	Soil type	deep S	SL	SC	LC	HC
	% gleyed	0–10%	10–20%	20–30%	30–70%	> 70%
	Site drainage	1	2	3	4	5
	Landform			plain/plateau	valley floor	swamps
	Drainage capacity			capable	uneven	incapable
Central	Drainage	well drained	moderately drained	imperfectly drained	poorly drained	v. poorly drained
	Landform element	undulating	undulating	plain	valley floor	swamp
	Soil type	S	SL	SCL duplex soils	C	C
	Soil depth	> 1.0 m	0.5–1.0 m	.2–.5 m	< 0.2 m	< 0.2 m
	Mottling	0–10%	10–20%	20–30%	30–70%	gleyed
	Inundation risk	Nil	Low	Medium	High	Very high

Soils classified as Class IV or V should generally not be cleared.

Waterlogging
The land degradation assessment criteria for waterlogging remain to be developed.

Soil acidity

(Central and Northern regions only)

Soil acidity should be tested on yellow or pale yellow sandplain supporting Wodgil vegetation (*Acacia* spp.) or where naturally acid soils are suspected.

1. Identify areas of uniform vegetation (sandplain unit).

2. Soil sampling (subsoil 15–20 cm). Take one sample per hectare systematically across the unit, with a minimum of 30 samples within a sandplain unit. Then bulk each 30 samples and take a subsample for soil testing.

3. pH test on subsample (1:5 0.01M $CaCl_2$)

   pH ≥ = 4.5 Not highly acidic, no clearing restrictions.

   pH < 4.5 Proceed to 4.

4. Al test on subsample (1:5 0.005M KCl extract).

   < 20 umol Al Not highly acidic, no clearing restrictions.

   ≥ 20 umol Al Do not clear.

   These levels of Aluminium significantly reduce plant growth resulting in an increased wind erosion risk and increased groundwater recharge.

ENVIRONMENTAL EVALUATION OF NATIVE VEGETATION IN THE WHEATBELT OF WESTERN AUSTRALIA

Principles and Criteria Used to Appraise Land Clearing Proposals

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CONTENTS

INTRODUCTION

The purpose of this paper is to provide criteria for remnant vegetation assessment for the Department of Environmental Protection. These criteria aim to maintain a living landscape where biological diversity and ecological processes continue amidst more economic land uses. A major policy influence is Ecological Sustainable Development, our commitments under The National Strategy for Conservation of Australia's Biological Diversity and the need to ensure that all Western Australian species of flora and fauna, native ecosystems and communities can survive, flourish, retain their potential for evolutionary potential **and** contribute to sustainability in agricultural industries.

The paper discuss principles and criteria which may apply to all or part of an area of land under the following headings:

- **Regional processes** - importance of the land in maintaining viable ecological processes.
- **Representation** - role in conserving the genetic diversity of the region.
- **Viability** - survival of natural values.

The criteria have been selected with recognition of the following constraints:

- Operational personnel must be able to readily comprehend and implement assessment criteria and methods.
- The science behind the criteria must be clearly stated.

Criteria are considered independently so that people can ascribe different weights according to their priorities.

An assessment methodology, assessment forms and sources of data have been developed in parallel with this study by Dr. Gillian Craig. It is anticipated that many proposals will be handled through a desk study, some will require a rapid field assessment and a few will require detailed assessment of flora and fauna.

SOURCES OF INFORMATION

This paper, unless otherwise quoted, is based on the procedures outlined in Safstrom, R. 1995. *Conservation Values of Small Reserves in the Central Wheatbelt of Western Australia: A Framework for Evaluating the Conservation Values of Small Reserves*, an unpublished report for the Department of Conservation and Land Management, Western Australia and the Water Authority of Western Australia. This paper provides a more detailed analysis of many of the criteria used and reasons why other criteria are considered inappropriate.

Ideas outlined in the Department of Conservation and Natural Resources, Victoria *Planning Guidelines for Native Vegetation Retention Controls (1996);* the *Principles of Clearance of Native Vegetation* in the South Australian Native Vegetation Act 1991 and *Land Assessment Process for Crown Lands in New South Wales,* Land Assessment Branch, Department of Conservation and Land Management, New South Wales are incorporated in the report.

Input from the following people is acknowledged: Charles Nicholson, Keith Bradby, Angas Hopkins, Richard Hobbs, Martin Choppin, Vaughan Cox, Ken Atkins, Penny Hussey.

Other References

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PRINCIPLES FOR EVALUATION OF NATIVE VEGETATION

The tables in this section provide a summary of principles to be considered when assessing priorities for retention of native vegetation. The third column can be used to note whether the principles apply to a particular piece of native vegetation. Criteria and justification for the principles are detailed in *Criteria for Evaluation Principles* on page 6.

1. REGIONAL PROCESSES

Item	Principle - native vegetation should be retained if:	Yes/No/ Partly
1.1 Water	the clearance of vegetation is likely to cause deterioration in surface and groundwater catchments which result in increases in salinity and eutrophication.	
1.2 Soil	the clearance of vegetation is likely to contribute to soil erosion, waterlogging or flooding	
1.3 Corridors and Buffers	the land provides a corridor or stepping stone between areas of conservation land or the land provides a buffer or is an inlier to areas reserved for conservation	
1.4 Aesthetics and Cultural	the land provides high landscape values, has special physiographic features, aboriginal sites or heritage value	

2. REPRESENTATION

Item	Principle - native vegetation should be retained if:	Yes/No/ Partly
2.1.1 Flora	it contains or is likely to contain threatened flora or flora of special interest.	
2.1.2 Plant communities	it contains or is likely to contain threatened plant communities	
2.1.3 Diversity	it contains areas of very high species richness	
2.1.4 Wetlands	it contains wetlands of significance	

2. REPRESENTATION (continued)

Item	Principle - native vegetation should be retained if:	Yes/No/ Partly
2.1.5 Local representation	within a 15 kilometre radius of the remnant there is less than 20% of the original cover of any plant community on the land represented by: (i) viable occurrences in NPNCA National Parks or Nature Reserves. (ii) viable occurrences in other Crown Land or Remnant Vegetation Protection Scheme covenants.	
2.1.6 Regional representation	it includes vegetation communities not well conserved in the region compared with the original cover as represented in the Interim Biographical Representation in Australia (IBRA)	
2.2.1 Wildlife	it contains or is likely to contain rare fauna	
2.2.2 Habitats	it has significance as habitat for wildlife or if a loss of diversity by clearing part of the land will adversely impact on fauna dependent on a mosaic of vegetation types.	

3. VIABILITY

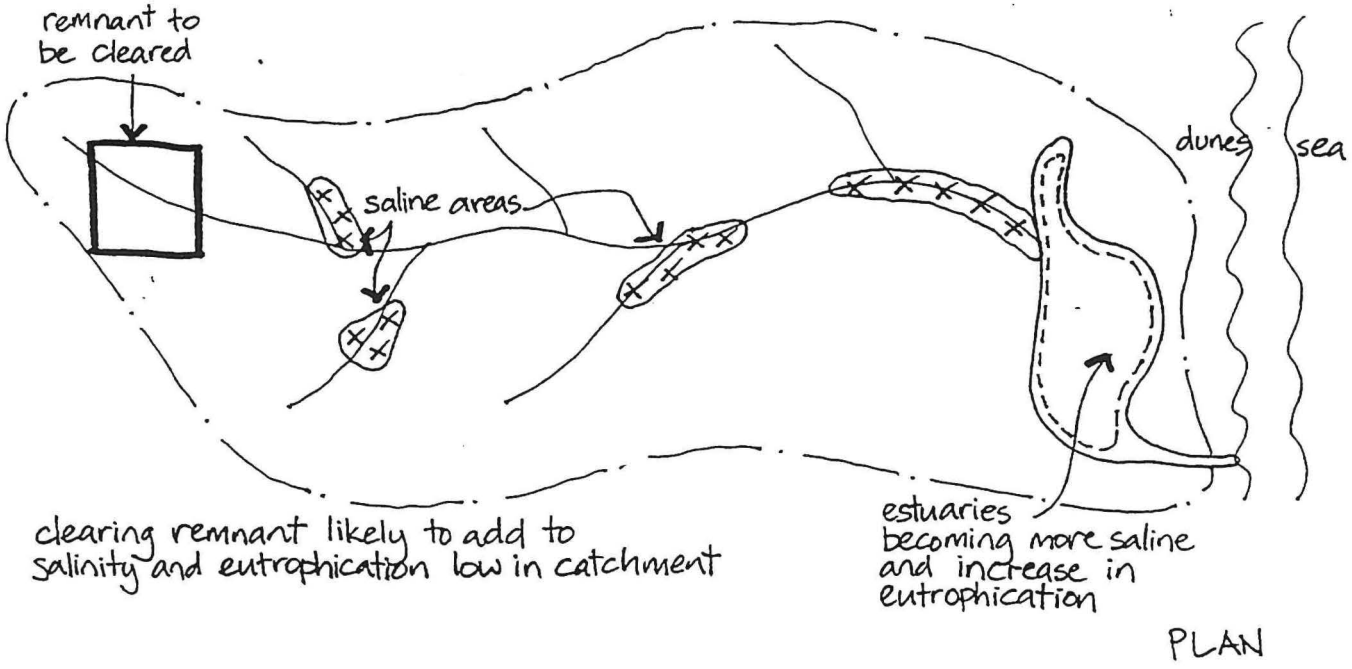
Item	Principle - survival of natural values over the next 50 years.	Yes/No/ Partly
3.1 Area	Large areas have higher conservation values, the maximum possible area of a remnant should be retained. Groups of small remnants can support fauna able to move between remnants and threatened species.	
3.2 Shape	Very narrow areas of retained vegetation are less likely to be viable and of reduced value as corridors.	
3.3 Intactness	Remnants with little or no intact vegetation are unlikely to be viable.	
3.4 Diseases and Pests	The vegetation should be free of major diseases and pests such as Dieback. Disease free vegetation is more important for retention if similar vegetation communities in nearby reserves are diseased.	
3.5 Invasive plants	Presence of invasive plants capable of, or with potential to, disrupt ecosystem processes.	
3.6 Adjacent uses	Adjacent land uses impacting on the viability of the land must be considered.	

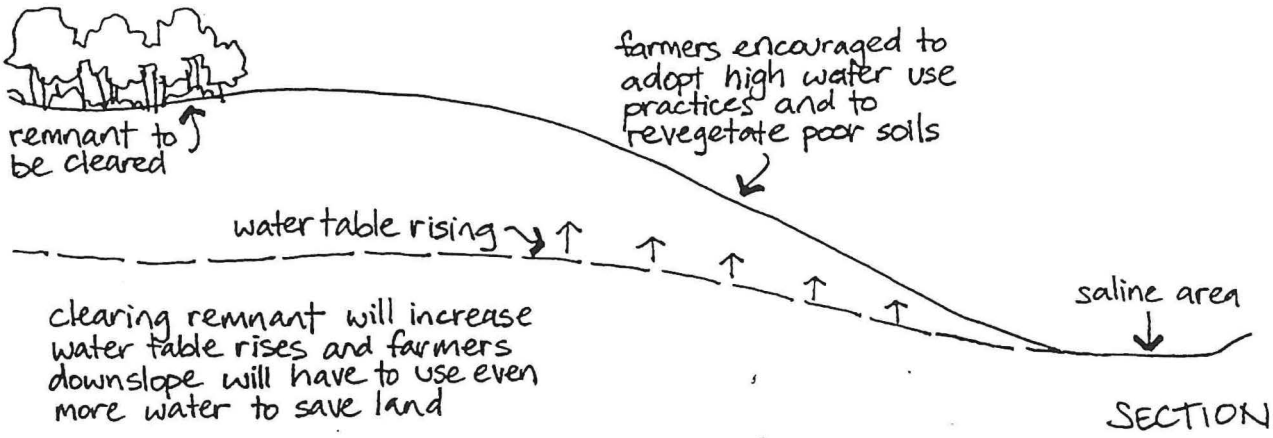
CRITERIA FOR EVALUATION PRINCIPLES

The tables in this section are designed to detail and provide justification for the Evaluation Principles on page 4 and 5. Diagrams are provided on the adjacent page or below the criteria to demonstrate the criteria in visual format. The third column indicates whether the criterion can be evaluated by desk study or if a rapid or detailed field survey is required.

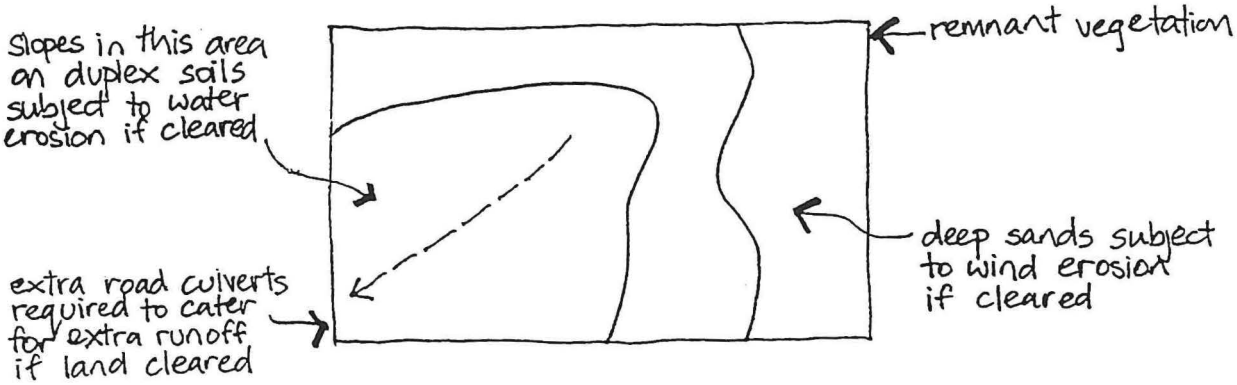
1. REGIONAL PROCESSES - importance of the native vegetation in maintaining viable ecological processes

Criteria	Justification for criteria	Study type
1.1 Water There should be no deterioration in catchment processes - groundwater, salinity and eutrophication	The impact of clearing and subsequent land use on both surface and underground catchments needs to be considered. For example if the clearance of vegetation is likely to result in a rise in the water table or increasing eutrophication then caution is required. It may be possible to calculate the additional groundwater recharge as a result of clearing native vegetation. Any increase in recharge in catchments known to have rising ground water is undesirable as extra amelioratory works will have to undertaken elsewhere in the catchment to make up for the increase. Most valley woodlands are currently under threat in the wheatbelt from rising water tables in the next 50 years. They should be retained on the premise that landscape management will be initiated and water table rises arrested and that if degraded by salinity will be of little agricultural value.	Desk study, information on underground water available for some areas
1.2 Soil There should be no deterioration in soil processes - soil erosion and water logging	Remnant vegetation plays a role in preventing soil erosion by wind and water, and waterlogging. Native vegetation needs to be retained where land capability mapping indicates a high likelihood (Classes IV and V) of soil degradation if the land is cleared.	Desk study





CRITERIA 1·1 CATCHMENT PROCESSES

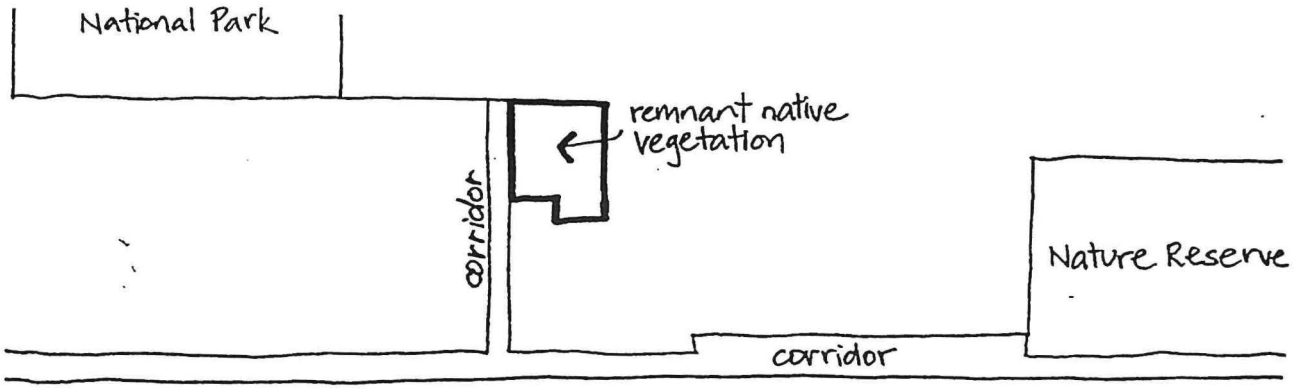


CRITERIA 1·2 SOIL PROCESSES

Catchment and soil processes affected by clearing native vegetation

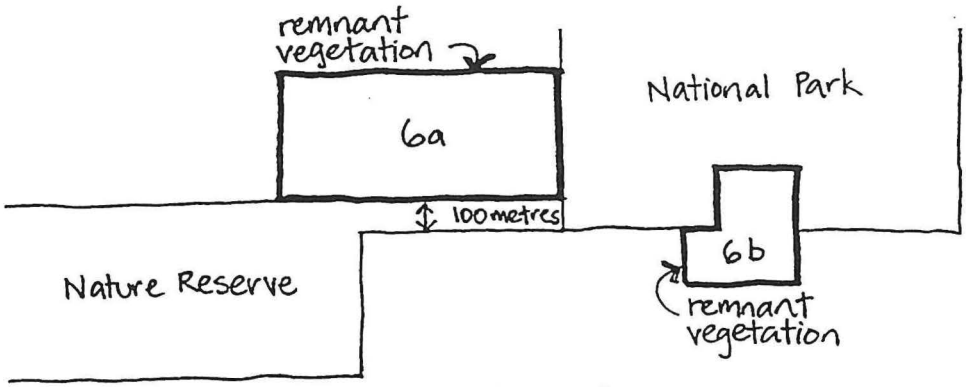
1. REGIONAL PROCESSES (continued)

Criteria	Justification for criteria	Study type
1.3.1 Corridors Corridors or stepping stones between areas of conservation land requires protection	Native vegetation close to other remnants and with good connecting corridors have greater viability for many species. Due to lack of consistent data and the species specific nature of the benefits of connectivity it is difficult to recommend criteria for corridor and stepping stone design. It is assumed that even narrow bands of native vegetation (5-10 metres) with breaks less than 400 metres are useful for some species. Other species will require continuous linkages of wide corridors (500 metres plus) containing core areas of undisturbed vegetation which are habitats in their own right.	Desk study
1.3.2 Buffers Native vegetation which is adjacent, an inlier or provides a buffer to conservation land requires protection	Native vegetation adjacent to conservation reserves improves the viability and conservation values of the reserve by providing larger core areas, buffers the reserve from edge effects, sometimes consolidates boundaries and sometimes add plant communities not represented or under represented in the reserve. The width of buffers required will depend on the robustness of the vegetation associations, with vegetation communities on nutrient poor soils requiring smaller buffers than communities such as woodlands on richer soils.	Desk study
1.4.1 High landscape -aesthetic values - should be maintained	The familiar rural landscape of farmland fringed and dotted with trees and patches of bush can only be maintained with positive action. Retain vegetation with high scenic quality, strongly defined vegetation patterns, unique specimen stands, areas of high plant diversity which display distinctive textural and colour patterns and dramatic displays of seasonal colour (*Reading the Remote Landscape Characters of Western Australia).*	Desk study and rapid field survey.
1.4.2 Special physiographic features require protection	Special features on the land that may be of community interest such as outcropping dolerite dykes, granite outcrops, breakaways.	
1.4.3 Significant aboriginal sites require protection	Presence of Aboriginal sites on the land	



The remnant provides a corridor or stepping stone between areas of conservation land

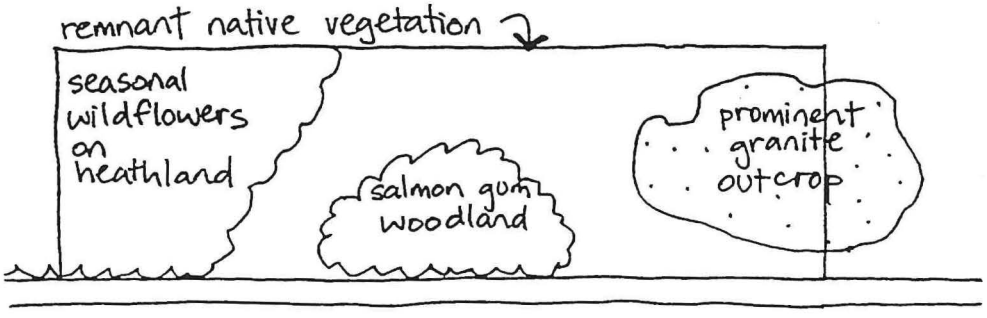
CRITERIA 1·3·1 CORRIDORS AND STEPPING STONES



6a: The remnant is adjacent to and provides a corridor between conservation land

6b: The remnant is an inlier and provides a buffer to conservation reserves

CRITERIA 1·3·2 BUFFERS AND INLIERS

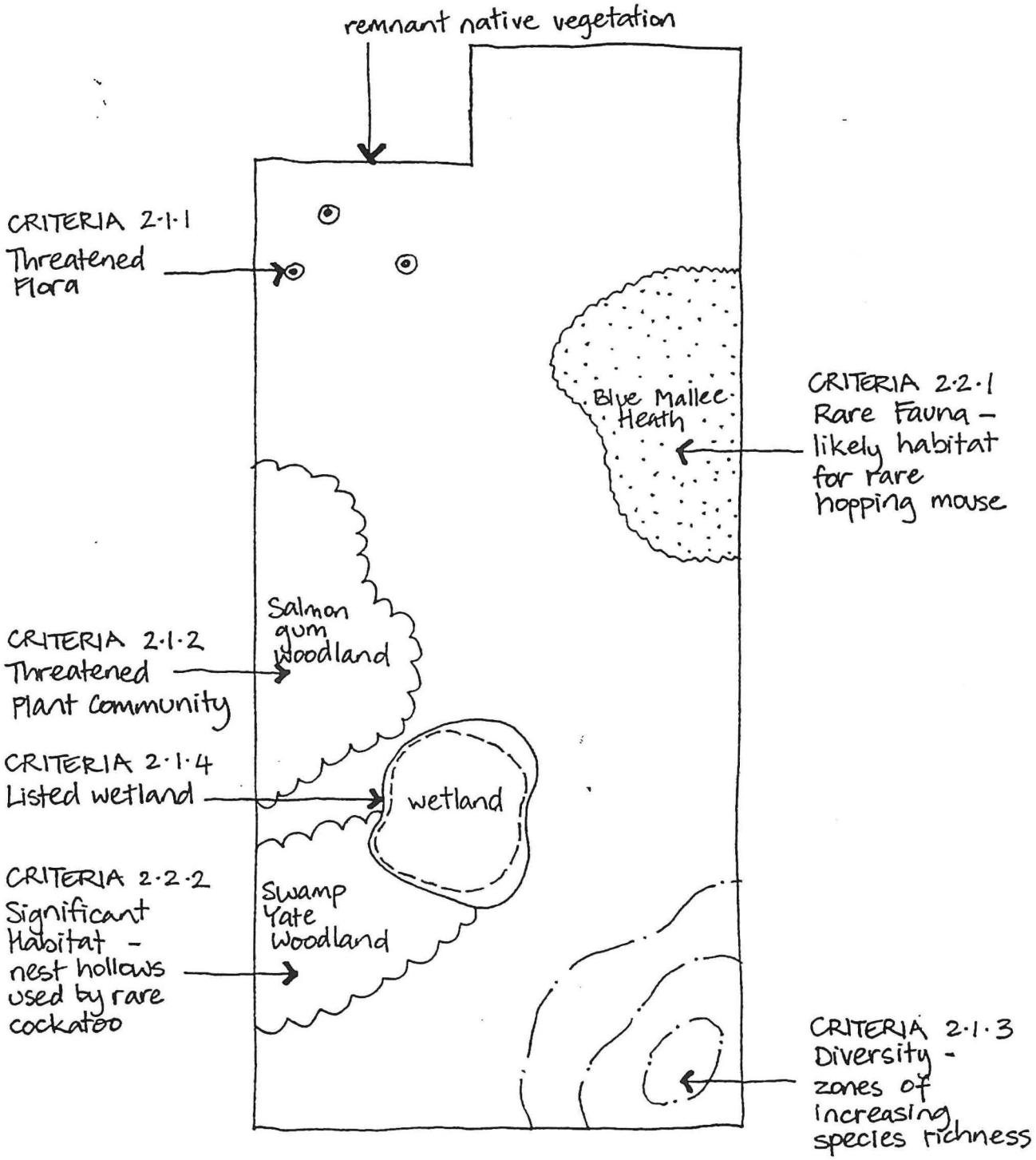


CRITERIA 1·4·1 HIGH LANDSCAPE VALUES

Native vegetation provides corridors and stepping stones for wildlife, buffers for National Parks and Nature Reserves and aesthetic values

2. REPRESENTATION - role in conserving the genetic diversity of the region

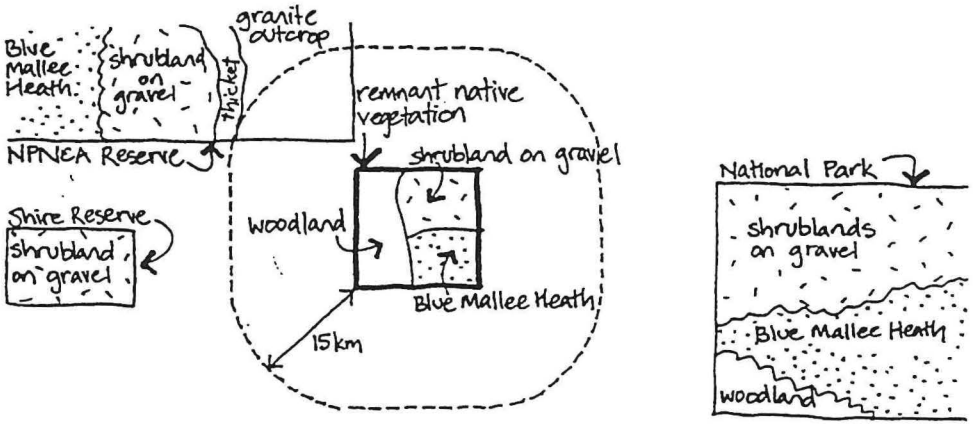
Criteria	Justification for criteria	Study type
2.1.1 Threatened flora, flora of special interest as listed by CALM require protection	Native vegetation which contains or is likely to contain threatened species, species of special interest should be a high priority for protection. *This study adopts the gazetted lists of threatened flora and priority lists as maintained by CALM.*	Information known from previous studies
2.1.2 Threatened plant communities as defined by CALM or Priority one and two communities as listed in the RVPS require protection	Work by CALM is aimed at defining and ranking threatened plant communities but there has been little work in the wheatbelt at this stage. *This study uses the vegetation community priorities defined in the Remnant Vegetation Protection Scheme* . Other communities may also be important such as relictual Gondwanan genera/habitats	Desk study of Beard vegetation mapping, possibly rapid field assessment to identify vegetation communities
2.1.3 Diversity - areas of high species richness (over 25 -30 perennial species per 100 square metres) require protection	Where areas of very high species richness have been identified (for example by isoflors) they are a high priority for protection. Plant communities known to have high ephemeral species richness are also a high priority for protection but assessment results will depend on the season. Native vegetation with overall high species richness are also a high priority for protection but a detailed survey is required.	Desk study, detailed survey may be required
2.1.4 Wetlands as listed are a priority for protection	Wetlands (and their surface and groundwater catchments) recorded in Table 1 of Protected Wetlands under the South West Agricultural Zone Wetlands, Environmental Protection Policy have a high priority for protection. Wetlands recognised as significant at a district level (refer DEP and CALM) are also a priority for protection.	Desk study and rapid field assessment



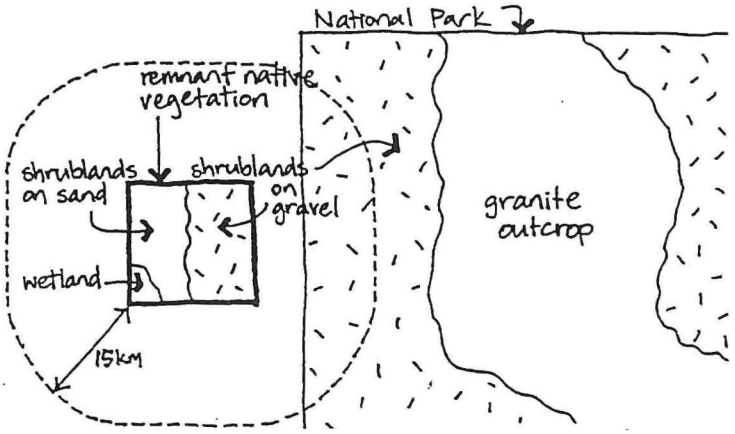
Native vegetation may include areas with high nature conservation values

2. REPRESENTATION (continued)

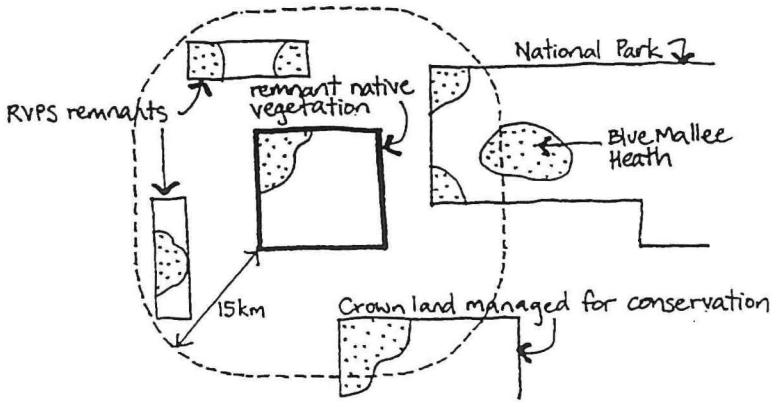
Criteria	Justification for criteria	Study type
2.1.5 Within a 15 kilometre radius of the remnant there are vegetation communities which do not have 20% of their original occurrence represented in NPNCA National Parks or Nature Reserves or in other Crown land or Remnant Vegetation Protection Scheme covenants . Where remnant native vegetation contributes to representation up to 20% of the original occurrence of a plant community it is a high priority for protection.	If reserves in the region are to conserve the flora, especially rare species then stands within the same broad formations and soil types are required at least at intervals less than 15 kilometres. Spacing of reserves will have to be considerably less in species rich areas (Burgman 1988). Replications of habitats is also very important. Hopper (1992). Natural catastrophes, land use change could mean the loss of occurrences. 20% of the original cover of each plant community should be retained. There is no scientific data to suggest that 20% is sufficient but 20 % is suggested as a baseline for the wheatbelt in line with the 20% rule for retention of remnant vegetation within a farm, catchment and Shire. The most securely held reserves are vested in the National Parks and Nature Conservation Authority (NPNCA) and managed by CALM. Other Crown reserves may be being managed sympathetically for nature conservation eg by shires and while less secure are considered in this study. Some privately owned remnants are secured temporarily under 30 year covenants with AgWA under the Remnant Vegetation Protection Scheme. Other private remnant vegetation is also playing a major conservation role but is not considered at this stage as its security is uncertain.	Desk study of Beard vegetation communities, rapid field assessment may be required
2.1.6 Vegetation communities not well represented in IBRA regions are a high priority for protection.	Where the land includes vegetation communities not well represented in the Interim Biographical Representation in Australia (IBRA) region they have a high priority for protection.	Desk study



The whole of the remnant should be retained because it contains woodland which is poorly represented in the IBRA region and the shrublands on gravel and the blue mallee heath are not represented in National Parks, Nature Reserves or on Crown Land within a 15 kilometre radius of the remnant.



That part of the native vegetation containing shrublands on gravel is a lower priority for retention because there is greater than 20% of their original occurrence within 15 kilometres in the nearby National Park. The shrublands on sand and wetlands are a high priority for retention as they are not represented within a 15 kilometre radius of the remnant.



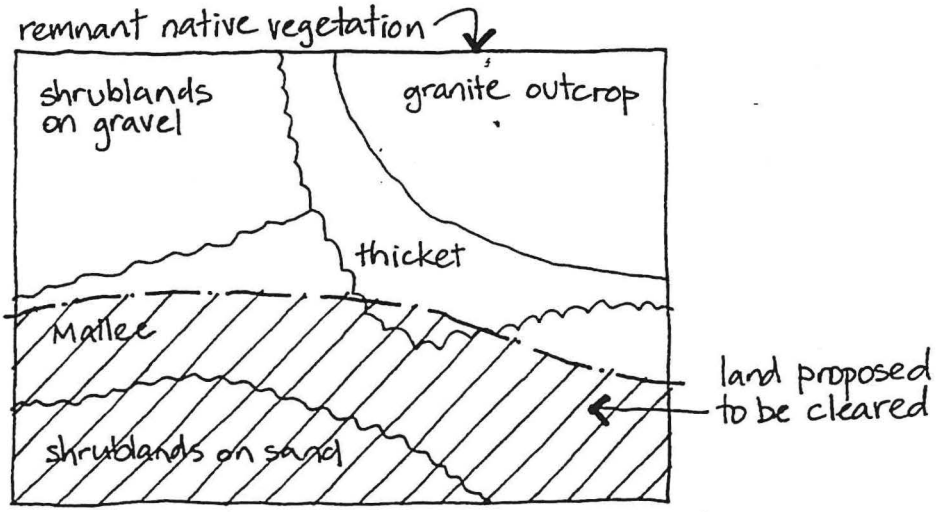
That part of the remnant vegetation containing blue mallee heath is a lower priority for retention because more than 20% of the original occurrence is represented in National Parks, Crown Land and RVPS covenants.

CRITERIA 2·1·5 REPRESENTATION

Examples of representation of plant communities

2. REPRESENTATION (continued)

Criteria	Justification for criteria	Survey type
2.2.1 Rare and priority fauna as listed by CALM requires protection	Remnant vegetation known to contain or likely to contain rare fauna should be a high priority for protection. *This study adopts the gazetted lists of threatened fauna and priority lists as maintained by CALM.*	
2.2.2 Significant habitats for wildlife require protection	Some areas are particularly valuable as habitats for wildlife, for example nest hollows in woodlands and if removed or their habitat values significantly reduced then there would be a high probability of regional population decline of a species. The plant communities present can be significant for wildlife. Many species have adapted to and require a diverse environment to meet their seasonal food requirements. If one plant community is preferentially reduced by clearing, the remaining areas will be of reduced nature conservation value. The aim should be to retain sufficient adjacent areas of each plant community in a remnant to satisfy faunal requirements.	Desk study, rapid assessment may be required



Clearing of Mallee and shrublands on sand would seriously disadvantage fauna dependent on those plant communities for part or all of the year

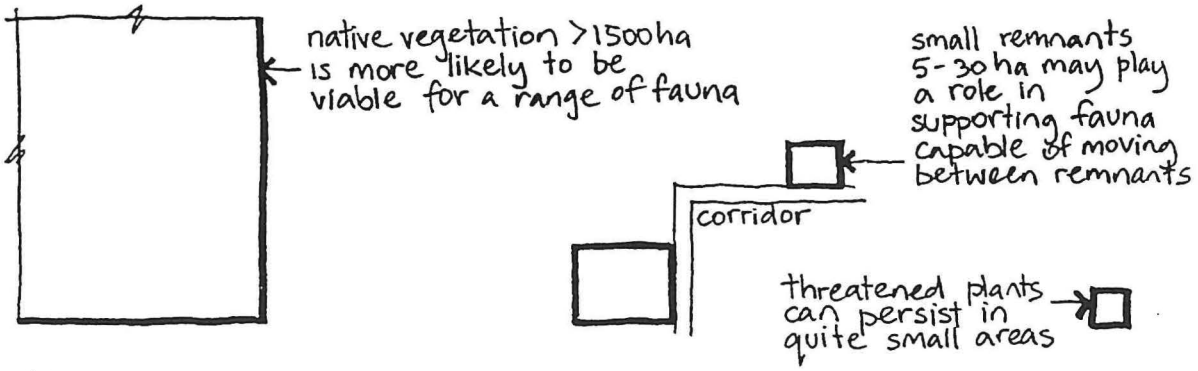
CRITERIA 2·2·2 HABITAT PROTECTION

Many species of wildlife have adapted to and require diverse vegetation communities for their survival

3. VIABILITY - survival of natural values

Viability considers factors which can be identified as having a high likelihood of resulting in serious degradation of the remnant over the next 50 years. Impacts of future human actions have not been considered. Areas which are degraded and considered not viable may be valuable if restorable or provide a seed source for habitat reconstruction. Water table rise can affect viability but have not been considered in this section on the premise that landscape management will be initiated and water table rises arrested.

Criteria	Justification for criteria	Study type
3.1 Maximise area of native vegetation to enhance viability	In this study it has been assumed that larger remnants, >1500 ha, have higher conservation values and are more likely to be viable for a range of fauna than small remnants (Kitchener et al 1980). The majority of privately held remnants in the Wheatbelt are small but may play a valuable role in supporting fauna species capable of movement between remnants, in species movements and sometimes are the only representation of the original vegetation. There appears to be little agreement on the minimum size of remnants for conservation purposes. Wallace (1989) has suggested that 25 ha is one reasonable cut off based on the work of Kitchener et al (1980) on mammals. The Remnant Vegetation Protection Scheme has provided fencing assistance for areas down to 5ha. The study *Conservation of Small Reserves in the Central Wheatbelt* suggested that an intact area of 30 hectares was one criteria for a reserve to be considered for vesting in the NPNCA. Threatened plants can sometimes persist in quite small areas. It is desirable to retain the maximum area of a remnant possible and aim to retain areas greater than 1500 ha with areas of 30 hectares and smaller still being valuable depending on the conservation goal.	Desk study

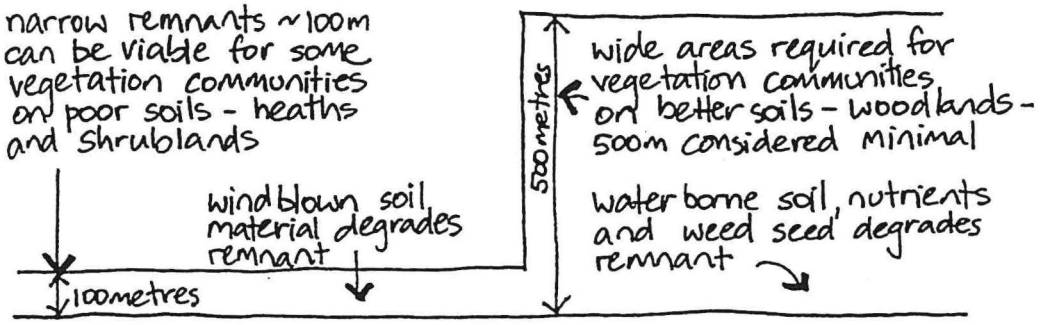


CRITERIA 3·1 AREA

Native vegetation of all sizes can play a role in conserving flora and fauna in the Wheatbelt of Western Australia

3. VIABILITY (continued)

Criteria	Justification for criteria	Study type
3.2 Native vegetation with small edge to area ratios are best for viability	Remnants with small edge to area ratios are likely to be better for nature conservation than remnants with large edge to area ratios and the shape of a remnant is likely to be more important in small and linear remnants as more edge habitat and edge disturbances are created. It is suggested that edge to area ratios not be considered but small narrow isolated remnants with significant areas less than 100 metres in width will constitute mainly edge habitat with low viability. Narrow areas down to 5 metres can be viable on some soils or with a reasonable management regime. Viability of narrow areas such as retained corridors will depend on the ability of the plant communities to resist weed invasion, the position in the landscape and disturbance level. Plant communities on very infertile soils eg shrublands on gravels have a high ability to resist weed invasion compared with woodlands. Plant communities downslope and down wind of farming land are likely to degrade rapidly due to inputs of nutrients and weed seed. It is considered that 100 metres is a minimum width for retained native vegetation on poor soils with a minimum of 500 metres required for more fertile soils such as woodlands. These estimates are from field observations of weed invasion, there being insufficient information to quantitatively compare plant communities for inherent resistance to change. Corridors which are narrower or degraded can be very valuable for many species of wildlife but may require more management inputs to remain viable.	Desk study, rapid field survey to check indications of poor viability

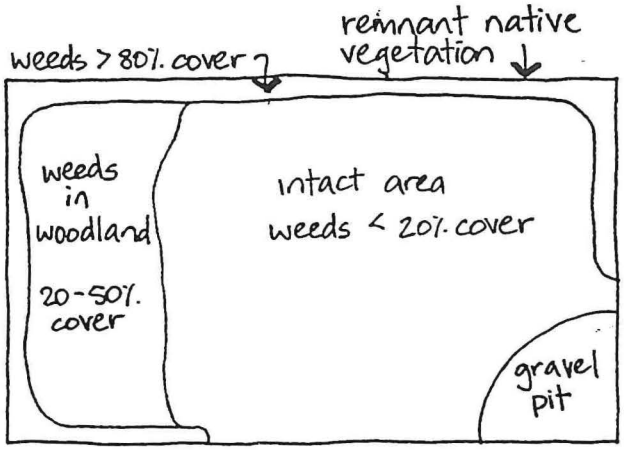


CRITERIA 3·2 REMNANT SHAPE

Wide areas of native vegetation have better viability and better nature conservation values than narrow areas

3. VIABILITY (continued)

Criteria	Justification for Criteria	Study type
3.3 Intact Area - intactness - should be maximised to improve viability	The level of degradation of a remnant has been assumed to affect the value of a remnant for wildlife. Remnants with large intact areas are likely to have better viability than remnants with smaller intact areas. Mapping of weed cover together with mapping of other disturbances such as gravel pits and grazing provides a picture and repeatable measure of reserve condition. Weed cover often reflects grazing history. Weed cover can be mapped in the following classes : 0-20%, 20-50%, 50-80%, 80%+. Areas with less than 20% weed cover, and with no other degrading features, are assumed to be relatively intact. Note that weed cover is less useful in some situations subject to current heavy grazing such as on lateritic soils, seasonally inundated areas where the intactness of the community structure may be a better measure. Remnants with no or very low areas of intact vegetation are assumed to have low viability.	Rapid field survey

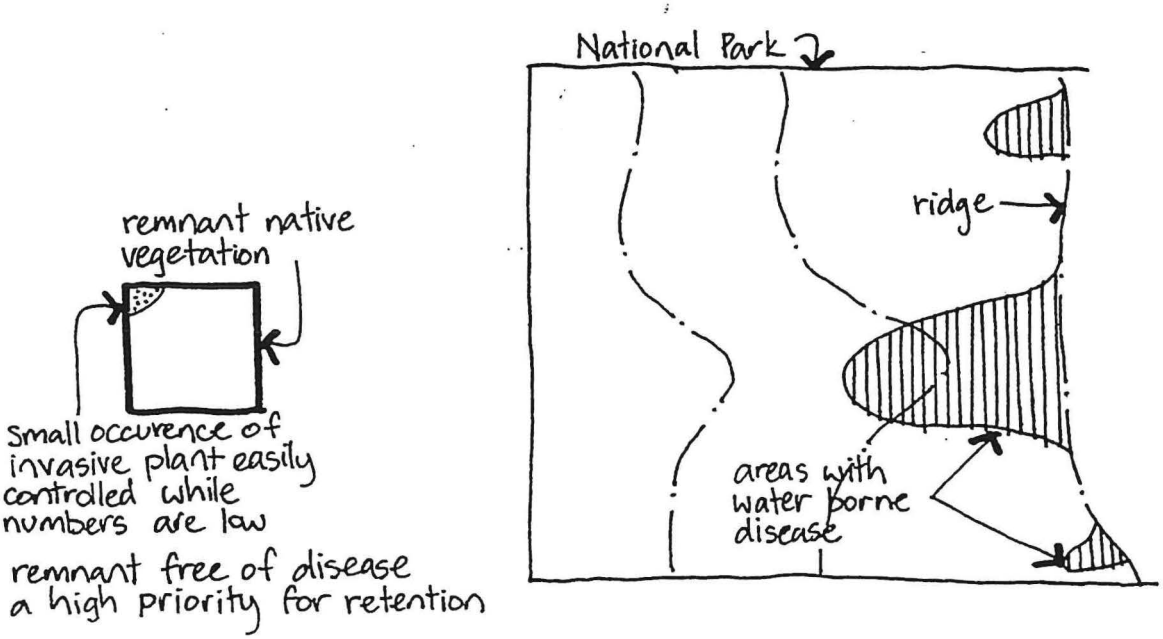


CRITERIA 3·3 INTACT AREA

Intact native vegetation has high conservation values and viability compared to degraded areas but degraded areas can sometimes be rehabilitated and may provide a buffer to intact areas

3. VIABILITY (continued)

Criteria	Justification for criteria	Survey type
3.4 Native vegetation with disease will have reduced viability	Diseases such as Dieback (Phytophthora species) can have a big impact on a vegetation community. In some cases disease will be present or likely to spread further in reserves but is yet to impact on private remnants. In these cases the value of the remnant to retain disease free examples of the original vegetation is increased.	Desk study and rapid field survey
3.5 Invasive plants reduce viability	Presence of invasive plants capable of, or with potential to, cause modification to species richness, species abundance or ecosystem function or to totally and permanently destroy an ecosystem.	Rapid field survey
3.6 Adjacent land uses may impact adversely on viability	Farming in the wheatbelt is the land use most likely to impact on a reserve and in most cases the effects are restricted to edges. Where drains for saline water disposal were constructed into a remnant the effects are severe and in such cases the affected parts of the reserve are considered to have low viability. Sandblown/deposition from adjacent paddocks with soils subject to wind erosion can be a major cause of bushland decline.	Desk study and rapid field survey

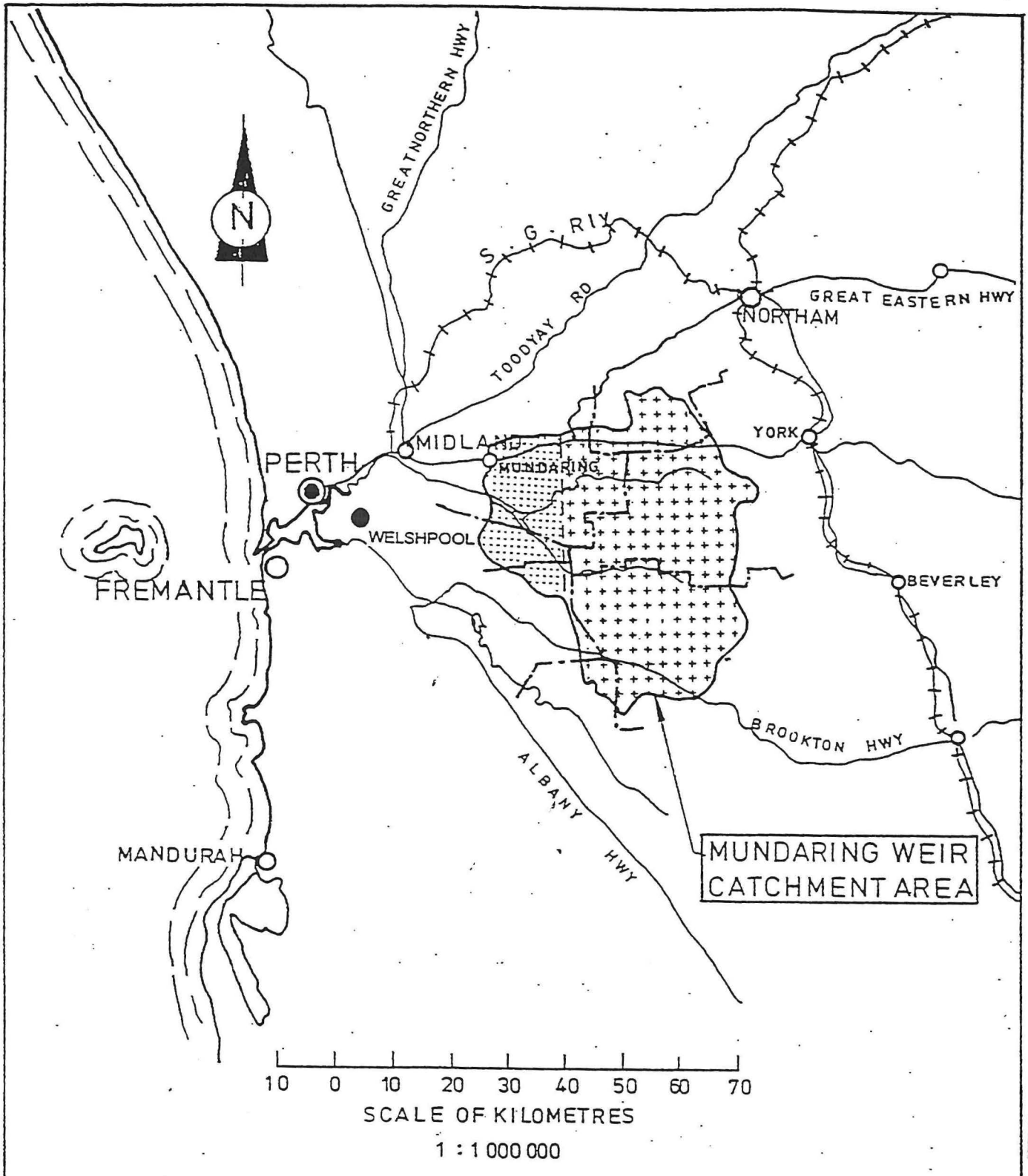


CRITERIA 3·4 DISEASE & 3·5 INVASIVE PLANTS

Diseases and invasive plants can reduce the viability of native vegetation

WATER AND RIVERS COMMISSION

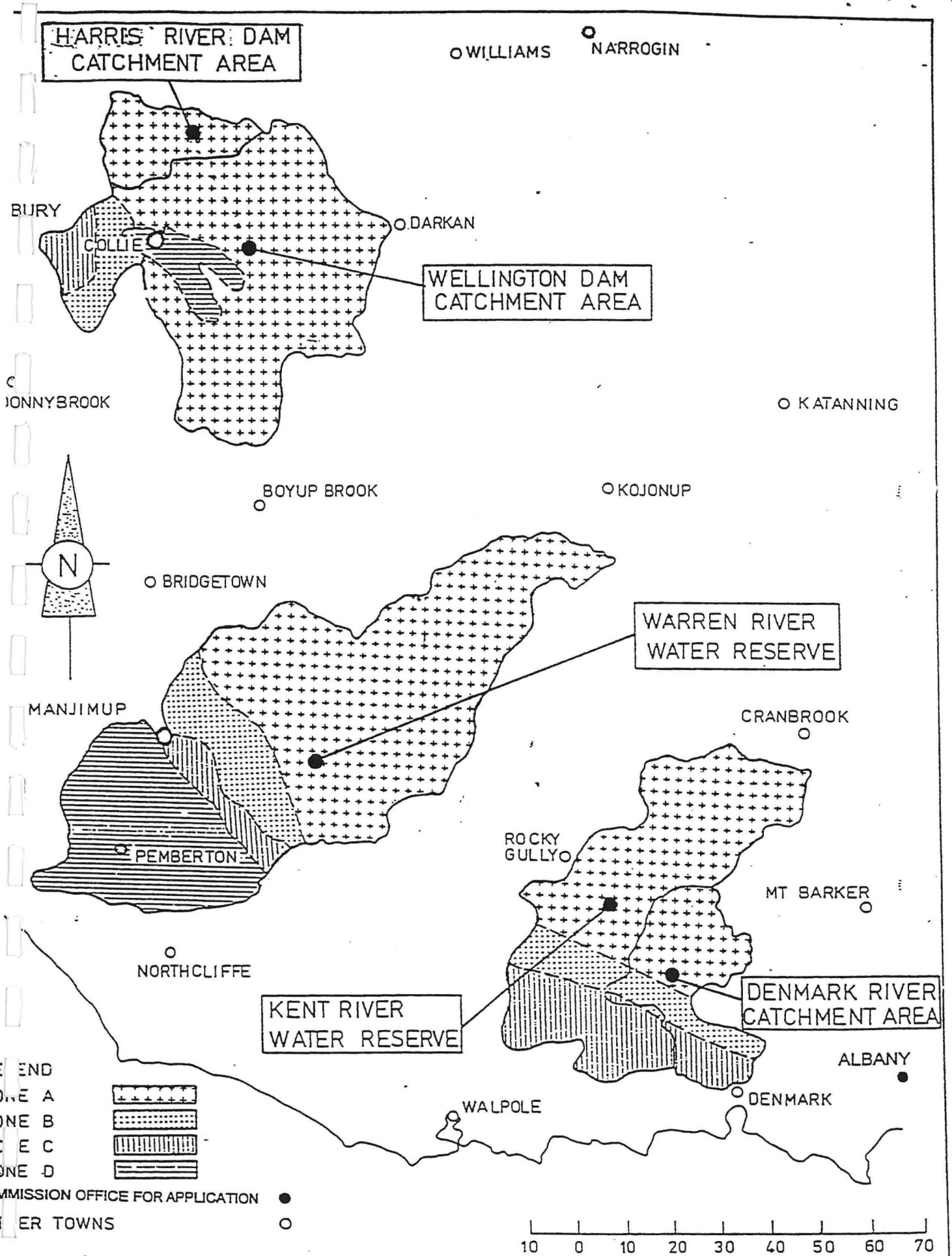
COUNTRY AREAS WATER SUPPLY CATCHMENTS



CLEARING CONTROL GUIDELINES

LOCALITY MAP
FEBRUARY 1996

WATER AND RIVERS COMMISSION



CLEARING CONTROL GUIDELINES

LOCALITY MAP
FEBRUARY 1996

WATER AND RIVERS COMMISSION

MODEL PROPOSAL

INFORMATION REQUIRED IN SUPPORT OF A NOTICE OF INTENTION TO CLEAR LAND

Regulations under the Soil and Land Conservation Act require that any land holder intending to clear more than one hectare of land for a change in land use should advise the Commissioner of Soil and Land Conservation. This is done by submitting a Notice of Intention to Clear at least 90 days before the intended date of clearing.

On 5 March 1999, the Minister for Primary Industry announced that henceforth, the land holder would need to show that the clearing would not cause land degradation. Such evidence would accompany the Notice of Intention to Clear if the Commissioner was going to consider that Notice.

Earlier, (in April 1997) Agriculture Western Australia and the Commissioner of Soil and Land Conservation entered into a Memorandum of Understanding with other agencies which have an interest in land clearing. These agencies were the Department of Conservation and Land Management, the Water and Rivers Commission, the Department of Environmental Protection and the Environmental Protection Authority.

While the interest of the Commissioner was land degradation, these other agencies are principally interested in the biodiversity and nature conservation impacts of land clearing.

The attached document is an example of a **Full Clearing Proposal** which would meet the requirements of the Commissioner of Soil and Land Conservation and the other signatories to the Memorandum of Understanding.

The Commissioner is willing to consider a **Preliminary Clearing Proposal** and indicate to the proponent whether or not it is worth preparing the **Full Clearing Proposal**

The parts of this document which would serve as a **Preliminary Clearing Proposal** are indicated by grey shading.

This document is not the only way that proposals might be presented. It may however assist those not familiar with this type undertaking. It is liable to change.

Jim Dixon
Senior Advisor
Soil and Land Conservation
15 March, 1999

Your Ref:
Our Ref.:
Inquiries:
Date:

Commissioner of Soil and Land Conservation
Agriculture Western Australia
Locked Bag No. 4
BENTLEY DELIVERY CENTRE 6983

NOTICE OF INTENTION TO CLEAR LAND
ASSESSMENT AND SUPPORTING INFORMATION

1 LAND HOLDER AND PROPERTY DETAILS

1.1 Introduction

(Example only)
I, Mrs .....am the owner of .....Location .....and the proponent of a scheme which involves the clearing of .....ha of native vegetation.

The proposed clearing is for the purpose of establishing .....

Many areas of the property had been cleared by previous owners but had since regrown. Hence the assessment is based on the property being over .....% vegetated.

1.2 Notification dates

I have lodged the Notice of Intention to Clear Land (NOI) with the Commissioner of Soil and Land Conservation on (date).

1.3 Property location

Geographic position (centre of property)
The property is located approximately .....km .....of the .....townsite, on .....Road, within the Shire of .....

Nearest road intersection
.....Road intersects with .....Road, ...m to the .....of the property.

1.4 Areas (contiguous holding)

Contiguous locations
(Example only)
In addition to ..... Location ..... I also own Location numbers ..... which are contiguous and marked on the aerial photograph.

Clearing proposal
The area to clear is ..... ha on Location .....and shown on the aerial photograph.

Ground level photographs of the subject land are provided at the end of this report.

Over the contiguous Locations	**ha**	**%**
Total area		
Currently cleared		
Currently vegetated (native)		
Currently under Soil Conservation Notice, Conservation Covenant, or Agreement to Reserve.		
Area notified to clear		
Final cleared area (if clearing approved)		
Final vegetated area (if clearing approved)		
Final vegetated area under Soil Conservation Notice, Conservation Covenant, or Agreement to Reserve		

(Note, areas to 1 decimal place, percentages to 0 decimal places)

2 PROPERTY AND CATCHMENT DESCRIPTION

2.1 Rainfall

The property is situated between the ..... and ..... mm rainfall isohyet.

2.2 Position of the subject land in the landscape

(Example only)

The landscape of the immediate area is described as being *very gently* inclined (slopes < 3 to 5 %), with *very low* relief.(< 20 m) The subject land occupies a *crest* and *slope* position in the landscape, *(Mc Donald*, 1984).

2.3 Geology and geomorphology

(Example only)

Located on the lower south west corner of the *Darling Plateau*, the basement geology of the area consists of Proterozoic gneissic granites of the Albany Frazer province (*Wilde*, 1958).

Surface geology consists of *Tertiary Age* alluvial, lacustrine and marine deposits which have been strongly laterized in part (*Wilde*, 1984), distributed across the elevated areas of the landscape. Low lying areas contain *Quaternary* (including recent) *Age* colluvial material which is variably laterized and podsolized (*Wilde*, 1984).

2.4 Landforms and soils

(Example only)

Soil and landform mapping conducted by *H. M. Churchward*, 1988, indicate that the whole of the property is dominated by the **Angove** landform element. This is described by *Churchward,* as follows:

A - Angove: unit often comprises of gentle slopes, the heads of broad swampy valleys and broadly complex crests. Local relief is usually less than 20 m, and on the property the unit lies at an elevation of approximately 100 m a.s.l.

Soils are often associated with unconsolidated sandy sediments, including quartz cobbles. These sediments overlie kaolinitic clays and weathered granite.

Yellow duplex soils with gray brown surface horizons are dominant. The B horizons are usually mottled pale yellow and gray clay. Humus podsols are developed on the deeper sands, often at the head of drainage depressions.

2.5 Drainage

(Example only)

Drainage from the property flows ..... via the ..... River to the ..... Ocean. The ..... River has a catchment area of approximately ..... sq km, and is ..... % cleared of native vegetation.

The area notified to be cleared drains both north and south, being located on a watershed between two tributaries of the river.

Approximately ..... % of the affected land drains north via *first* order drainage. This discharges directly into a *fourth* order drainage line which traverses the property from ..... to..... The fourth order drainage catchment area is approximately ..... ha, and is over ..... % vegetated with native vegetation, principally State Forest.

The remaining area of the affected land drains south via *first* order drainage. This confluence's with a *third* order drainage line which has a catchment area of approximately ..... ha. This catchment has about ..... % of its land area under native vegetation which is all located on private land.

These tributaries confluence ..... m ..... of the property before flowing a further ..... m and discharging into the ..... River.

Up slope from and on the property, the drainage network is described as having a *tributary* pattern which is *interrupted* but *convergent.* Channel depth is *shallow* to *very shallow.*

Down slope from the property the channel network becomes *integrated*, and the channel depth increases to *moderately deep* (*Mc Donald*, 1984).

2.6 Vegetation type

(Example only)

The vegetation on the affected land is mapped as *Jarrah Banksia Low Open Woodland* (*Smith*, 1972). This is typically associated with areas of impeded drainage and includes Jarrah *(E. marginata*, smaller trees, see plates attached)) with an understory of banksia (*B. grandis* and *B. iliciflora*) and sometimes, Paperbark (*M. preisiana*).

In wetter areas the woodland gives way to sedge or dense heath plant communities (see plate 4) including *Beaufortia* and *Melalucea* spp.

As indicated by earlier aerial photography, significant areas of the property had been cleared by the previous owner. These have since regrown, and hence, ... % of the property is currently considered to be naturally vegetated.

The health of all the vegetation appears good with no significant loss of crowns, however, the stand is likely to harbor the Dieback fungus disease (..... pers. com.).

2.7 Catchment and subcatchment vegetation percentages

(Example only)

The percentage areas of vegetation that currently remains in the affected catchments is detailed in section .....

A total percentage native vegetation that is to be retained in a catchment in the over ..... mm rainfall zone is not indicated in the resource related guidelines.

Since the catchment area receiving drainage water from the south of the property is approximately ..... % cleared, no further clearing should be undertaken within its confines.

2.8 Degradation processes present or likely

A general description of the known degradation process is expected here.

3 SUITABILITY OF LAND FOR PROPOSED USE

3.1 Description of land use and analysis of land capability for proposed use

(Example only - this section would normally be much more detailed)
Land capability rating for orchard and vineyard land use on Angove lanforms is 'II' (*Churchward, 1993*). It is recognized that some limitations exist with regard to waterlogging, water pollution and eutrophication.

4 ASSESSMENT OF LAND DEGRADATION RISKS

4.1 Salinity

Will the removal of native vegetation contribute to a rise in groundwater table and on site or off site salinity.

Discussion

(Example only)

No hydrogeological information specific to Location ..... has been located.

Comments received from the ..... do not indicate the presence of any significant groundwater resources in the area or that the proposal will adversely impact on groundwater quality.

Soil salt storage measurements conducted within the locality indicate storage levels in the order of 0.08 to 0.116 kg/m3 (*Johnston,* 1980). In the context of Western Australian soils, this is considered to be very low.

Water balance modeling comparing bushland with ..... crop rotation, indicates that on soil type ..... the deep groundwater infiltration increases from an average of ..... mm per annum to ..... mm per annum. On the soil type/rotation combination of ..... there would be ..... mm increased infiltration. This is likely to have ..... impact on the groundwater table, and on the expression of salinity (describe location).

Conclusion

4.2 Eutrophication

Removal of native vegetation is likely to contribute to nutrient enrichment of surface and/or groundwater bodies.

Discussion

(Example only)
The area as indicated as area 2, on Attachment 1, has a high potential to contribute to the export of applied nutrients due to the absence of stream buffers, low phosphate retentive (PRI) soils and inundation.

Soils within the area described, consist of black, gray and brown organic stained course siliceous sands with bleached A2 and B horizons. The bleached sand profile often extends to more than a meter in depth and overlies pale gray clay subsoil and/or a red/brown iron organic hardpan. The winter perched watertable will intersect the soil surface most years, over approximately ..... % of area 2.

These areas are indicated as having a very low capability for the intended land use and pose a high degree of limitations associated with eutrophication. This is due to the land being subject to regular inundation and possessing the likelihood of a very low nutrient (particularly phosphate) fixing ability. PRI testing conducted on similar soils in the ..... River area, indicate that these soils may even disassociate phosphate, i.e., have a negative phosphate retention ability.

The Water and Rivers Commission has also highlighted the requirement to retain stream buffers on the minor watercourses draining ..... and ..... from the affected land. (Ref.) (Ref.) indicates that in the case of these first order streams the minimum buffer width should be 25 m each side of the watercourse.

Conclusion

4.3 Wind erosion

Removal of native vegetation is likely to contribute to wind erosion.

Discussion

Conclusion

4.4 Water erosion

Removal of native vegetation is likely to contribute to water erosion.

Discussion

Conclusion

4.5 Waterlogging

Removal of native vegetation is likely to contribute to waterlogging.

Discussion

Conclusion

4.6 Flooding

Removal of native vegetation is likely to contribute to flooding.

Discussion

Conclusion

4.7 Soil acidification

Removal of native vegetation and future land uses are likely to lead to soil acidification, or soils already have a low pH which is likely to limit plant growth.

Discussion

Conclusion

5 ASSESSMENT OF NATURE CONSERVATION AND HERITAGE VALUES

5.1 Corridors and buffers

The land provides a corridor or stepping stone between areas of conservation land or the land provides a buffer or is an inlier or outlier to areas reserved for conservation.

Discussion

(Example only)
The area as shown as 'Area 2' on Attachment 1, is considered to be a humic podsol as described in section 8.3, located at the head of 2 minor tributaries.

The presence of mesophytic vegetation (see plates 2, 3 & 4) on the site, a high winter watertable and extensive surface pounding, indicate limitations may exist with regard to seasonal waterlogging.

Waterlogging associated with this type of landscape feature is not clearly addressed in the land clearing guidelines which is more focused towards waterlogging and inundation of lower landscape positions. It may therefore be considered difficult to prevent the clearing of this area based on the risk of waterlogging on its own.

Conclusion

5.2 Aesthetics and cultural issues

The land provides high landscape values, has special physiographic features, aboriginal sites or heritage value.

Discussion

Conclusion

5.3 Flora

The region contains or is likely to contain threatened flora or flora of special interest. *(Note: Rare flora information known for the area is available at a fee for service from CALM. Such information will indicate if rare flora is known from the area, and what likelihood there is for rare flora to occur there. The information will also assist in undertaking field assessments for rare flora occurrence.)*

Discussion

Conclusion

5.4 Plant communities

The region contains or is likely to contain threatened plant communities.

Discussion

Conclusion

5.5 Diversity

The region contains areas of very high species richness.

Discussion

Conclusion

5.6 Wetlands

The region contains wetlands of significance.

Discussion

Conclusion

5.7 Local representation

Within a 15 kilometer radius of the remnant there is less than 20% of the original cover of any plant community on the land represented by:

(i) viable occurrences in NPNCA National Parks or Nature Reserves;

(ii) viable occurrences in the Crown Land or Remnant Vegetation Protection Scheme Covenants.

Discussion

Conclusion

5.8 Regional representation

The subject land includes vegetation communities not well conserved in the region compared with the original cover as represented in the Interim Biographical Representation in Australia (IBRA).

Discussion

Conclusion

5.9 Wildlife

The area contains or is likely to contain rare fauna.

Discussion

Conclusion

5.10 Habitats

The subject land has significance as habitat for wildlife or if a loss of diversity by clearing part of the land will adversely impact on fauna dependent on a mosaic of vegetation types.

Discussion

Conclusion

5.11 Viable area

Larger areas have higher conservation values. The maximum possible area of a remnant should be retained. Small groups of remnant vegetation can support fauna able to move between remnants, and threatened species.

Discussion

Conclusion

5.12 Viable shape

Very narrow areas of retained vegetation are less likely to be viable and of reduced value as corridors.

Discussion

Conclusion

5.13 Intactness

Remnants with little or no intact vegetation are unlikely to be viable.

Discussion

Conclusion

5.14 Diseases and pests

The vegetation should be free of major diseases and pests such as Dieback. Disease free vegetation is more important for retention if similar vegetation communities in nearby reserves are diseased.

Discussion

Conclusion

5.15 Invasive plants

Presence of invasive plants capable of, or with potential to, disrupt ecosystem processes.

Discussion

Conclusion

5.16 Adjacent uses

Adjacent land uses impacting on the viability of the land must be considered.

Discussion

Conclusion

6 SUMMARY

7 CONCLUSIONS

(Example only)

It has been demonstrated in this report, that the ..... ha notified to clear has no particular land degradation hazards or nature conservation values associated with it and may be cleared. The factors which lead to this conclusion are:

-
-
-
-
-

8 REFERENCES

(Example only)

Churchward, H. M, Mc Arthur, W. M, Bartle, G. A, (1988) Landforms and Soils of the South Coast and Hinterland, Western Australia. Divisional Report 88/1, CSIRO Institute of Natural Resources and Environment.

Johnston, CD, McArthur, WM, Peck, AJ (1980) Distribution of Soluble Salts of the Manjimup Woodchip Licence Area, Western Australia. Commonwealth Scientific and Industrial Research Organization, Division of Resource Management, Technical paper No 5. Australia

Mc Donald, RC, Isbell, RF, Speight, JG, Walker, J and Hopkins, MS (1984) Australian Soil and Land Survey Field Handbook. Inkata Press, Melbourne.

Schofield, N. J, Ruprecht, J. K and Loh, I. C, (1988). The Impact of Agricultural Development on the Salinity of Surface Water Resources of South West Western Australia, Western Australian water Authority.

Smith, FG (1972) Pemberton - Irwin Inlet WA 1: 250 000 Vegetation Survey of WA Explanatory Notes. Department of Agriculture WA.

WA Water Resources Council (1992) The State of the Rivers of the South West. Report WRC 2/92, Western Australian Water Resources Council.

Wilde, SA, Walker, IW, (1984) Pemberton - Irwin Inlet WA. 1:250 000 Geological Series Explanatory Notes, Geological Series of WA.

9 ATTACHMENTS

1 Properly completed form 1 of Schedule 2 of the Soil and Land Conservation Regulations 1992

2 Photo copy of street directory, showing approximate location of property.

3 Copy of the advertisement notifying the public of the intention to clear land, published in the main local newspaper and the Saturday edition of the 'West Australian' newspaper.

4 A cadastrally correct map(s) of the proposal at the scale of 1:10 000 This map shows all ownership boundaries, topographic features, landscape features, remnant and planted vegetation and reserved land, water courses, wetlands or saline areas that related to the proposed clearing, marked with recognised names, the extent of the proposed clearing, areas of existing land degradation.

5 The most recent available aerial photograph at a scale of 1:10 000 or larger, covering contiguous locations in the proponent's ownership.

6 Extracts of available and relevant soil, geological or vegetation mapping or descriptions or assessments.

7 A hydrogeological assessment addressing the risk of groundwater rise and salinity.

8 A written statement outlining the steps proposed to manage and prevent land degradation.

9 Advice from the relevant Shire Council and Land Conservation District Committee as to their opinion of the clearing proposal.

10 Ground level photographs of vegetation proposed for clearing. Photograph points to be marked on cadastral map or aerial photograph.

11 A satellite image with a 15 km radius circle marked, centered on the area proposed for clearing.

Signed .....

Address .....

Dated .....

SCHEDULE 2
FORM 1

[Reg. 4(2) and (4)]

SOIL AND LAND CONSERVATION ACT 1945
SOIL AND LAND CONSERVATION REGULATIONS 1992
NOTICE OF INTENTION TO CLEAR LAND

To: The Commissioner of Soil Conservation
Agriculture Western Australia
3 Baron-Hay Court
SOUTH PERTH WA 6151

I .....
(full name, block letters)

of .....
(postal address)

intend to clear .....hectares of land in the

.....Shire, as shown on the attached map, being the whole/part of

.....
(District and Location numbers)

and being .....km .....of .....
(north, south, east, west)

The clearing is intended to commence on or about .....
(date)

I am the .....of the land to be cleared.
(owner, occupier/owner and occupier)

I propose to use the cleared land for:

.....

.....

.....

My Land Conservation District is .....
(if applicable)

Signed..... Date .....

Telephone numbers (BH) ..... (AH).....

Please note, each Notice must be accompanied by a map with a north point, identifying the land to be cleared, detailing the local numbers of that land and any adjacent land, and showing any public roads adjacent to that land.

Application No.** Head Office File N.**

** Not required to be completed by person giving notice.

Extract from the Soil and Land Conservation Act (1945) Regulations of 1992

Notice of Clearing

4. (1) Subject to subregulation (3), the owner or occupier of any land in the State which it is proposed to clear shall, where that clearing will result in a change in the use of that land, at least 90 days before the commencement of the clearing, give notice to the Commissioner of his intention in that behalf.

Penalty: $2,000.

(2) The notice referred to in subregulations (1) and (4) shall be in writing in the manner set forth in Form 1 in Schedule 2 and shall be accompanied by a plan with a north point, identifying the land to be cleared, detailing the location numbers of that land and any adjacent land, and showing any public roads adjacent to that land.

(3) Subregulation (1) does not apply to the proposed clearing of land –

(a) which has an area of one hectare or less; or

(b) which is "controlled land" within the meaning of that term set forth in Section 12AA of the *Country Areas Water Supply Act 1947* and which is specified in Schedule 3.

(4) An owner or occupier who gives notice to the Commissioner in accordance with subregulation (1), but fails to commence clearing within the period of two years from the date of the notice, is required, at least 90 days before he or she proposes to clear the land, to give notice in accordance with subregulation (2) to the Commissioner for reassessment

(5) Subregulation (4) does not apply to a notice given to the Commissioner before 29 November 1991.

Agriculture
WESTERN AUSTRALIA

3 BARON-HAY COURT SOUTH PERTH WESTERN AUSTRALIA 6151 PHONE: (08) 9368 3282 FAX: (08) 9368 3654
POSTAL ADDRESS: LOCKED BAG NO. 4, BENTLEY DELIVERY CENTRE WA 6983

CONTACT DETAILS

LAND CONSERVATION OFFICERS (LCOs)

AS AT 11 APRIL 2000

NAME	AGRICULTURE WESTERN AUSTRALIA DISTRICT OFFICE	TELEPHONE	FAX
ANGELL KEN	MIDLAND	08 9274 5355 office 08 9250 9415 direct 041 793 4715 Mobile	08 9250 1859
COX NICK	BUNBURY	08 9780 6269	08 9771 2544
HARPER MAL	MERREDIN	08 9081 3115	08 9041 1138
LAUK HARRY	NORTHAM	08 9690 2162	08 9622 1902
MOORE BRENDAN	ESPERANCE	08 9083 1111	08 9083 1100
RICKWOOD FRANK	MOORA	08 9651 1302	08 9651 1008
ROGERSON AUSTIN	ALBANY	08 9892 8424	08 9841 2707
SCHILLER NADENE	JERRAMUNGUP	08 9835 1177	08 9835 1101
SHANHUN KEVIN	ALBANY	08 9892 8425	08 9841 2707
SILCOCK JOHN	BUNBURY	08 9780 6262	08 9780 6136
TIPPING PETER	MANJIMUP	08 9771 1299	08 9771 2544
VUKELIC BRETT	HARVEY	08 9729 1507	08 9729 1673
WARDELL-JOHNSON IAN	NARROGIN	08 9881 0222	08 9881 1950

Deleted since the Nov. 1999 edition;
ARMSTRONG, Fred GERALDTON 9921-8016

GRANT, John KATANNING 9821-1028